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ASSISTANT SURGEON TO ST BARTHOLOMEW'S HOSPITAL,  
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MY DEAR SIR,

It was from you I received a large portion of my Professional Education, and it is with no little gratification that I avail myself of the present opportunity, of publicly acknowledging, not only the valuable instructions I derived from you, while your Pupil, but also the great debt of gratitude I owe you, for unwearied kindness and friendship. I regret I cannot do so in a Work more worthy your acceptance and protection. Humble, however, as it is, it may still serve to express the sentiments I entertain towards you, and my admiration of the great zeal and ability which you have so successfully exhibited in the pursuit of our arduous and responsible Profession.

Believe me, my DEAR SIR,

With much respect and esteem,

Your obliged friend and pupil,

J. S. BUSHNAN.

Dumfries, September 1833.



## TRANSLATOR'S PREFACE.

---

MY attention was first called to the Work of Dr Dieffenbach by a Review of the first volume of it, in the Edinburgh Medical and Surgical Journal. I obtained a copy of the Work from Berlin, and, finding it to contain much interesting and practical information, which, I thought might be useful to the Profession, I determined to lay before it, that portion of the Book which related to the Restoration of the Nose, and the Removal of Tumours from its Cavity.

Happily for the age in which we live, Science has advanced so considerably, so much attention is now bestowed upon the Education of the Medical and Surgical Tyro, and such publicity given to the errors which the Practitioner commits, that lacerated Perineæ, deficient Palates, contracted Mouths, or gaps in Urethræ, are at present seldom met with. Careless Practitioners, however, still exist, and others incapacitated by moral and physical infirmities may yet be found, in whose hands such fearful things will occur; and, I therefore almost regret, that I have not laid the whole of Dr Dieffenbach's Work before the English reader. This is a defect, however, which may at a future period be remedied; and, in the meantime my labour will be amply repaid, if it prove the means of displaying any new or useful views and practices to my brethren, or even, in a solitary instance, assist to do away with that opprobrium medicinæ—a mutilated Nose.

In the first Chapter—which I have deemed it necessary to prefix to the Work—I have attempted to give a summary account of the History and Physiology of Rhinoplastic Operations, and have

thereby, in a great measure, anticipated any remarks which I might otherwise have been inclined to append, in the form of Notes, to the Observations of our Author.

In consequence of the great verbosity of the German language, and the almost irksome minuteness and tautology of the Author, the translation has necessarily been very freely rendered. I flatter myself, however, that I have succeeded in presenting a faithful transcript of Dr Dieffenbach's views and operations to the English Practitioner, with whom, as the Author himself remarks, it must remain to adopt or reject them, as he thinks proper.

I cannot conclude these Observations without returning my best thanks to Professor Lizars of Edinburgh, for his kind permission to append his Case to this Volume; it affords me much pleasure to avail myself of the opportunity of laying before the Profession, a specimen of the operation so highly creditable to British Surgery.

J. S. B.

Dumfries, September 1833.



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## CHAPTER I.

### TRANSLATOR'S INTRODUCTION.

#### THE HISTORY AND PHYSIOLOGY OF RHINOPLASTIC OPERATIONS.

THE faculty possessed by animals of continually renewing the particles of which their bodies are composed, has been from the earliest ages, a theme of admiration to physiologists. For every particle of the cellular tissue taken up, or removed by absorption, a corresponding particle is constantly deposited; and the same law, respectively, holds good in regard to the mucous, dermoid, serous, fibrous, cartilaginous, osseous, muscular, nervous and vascular tissues—of a certain combination of which every organ of the body is composed.

This renewal is universally admitted to be effected by the capillary arteries of each tissue, which, acting upon the blood which they contain, prepare from it, and deposit particles precisely similar to those which have been removed; although the immediate nature of the process by which they do so—being entirely molecular, and therefore not amenable to the senses—has hitherto eluded all our attempts to explain or understand it.

But not only are the *particles* of each individual tissue and organ thus continually undergoing a change, and the whole body in this manner kept, as it were, in a

state of perpetual freshness, but whole *tissues and organs*, if accidentally removed, are not unfrequently entirely regenerated. This occurrence, however, is much less frequent in man, and the more perfect animals, than in the less advanced forms of organized beings. In plants the power of reproducing parts which have been removed is almost unlimited, and in many of the invertebral animals it is very remarkable. Thus, the star fish, (*asterias*) the sea-anemone, (*actinia*) and the cuttle fish, (*sepia*) are sufficiently well known to be capable of reproducing their rays and tentacula;\* and crabs, lobsters and cray fish, (*cancer*) have the same power with respect to their claws;† the snail, (*limax*) can even reproduce its head with all its natural appendages;‡ the earth-worm, (*lumbricus terrestris*) and the water-worm, (*l. variegatus*) can regenerate either extremity of the body,|| and the fresh-water polypus (*hydra viridis*) if cut into numerous pieces, is capable of becoming, by the renewal in each piece of all deficient parts, as many perfect animals.§ Nor is this faculty confined to the invertebral animals, since many vertebral animals also—and in particular the reptiles—possess it to a very considerable degree, numerous experiments having abundantly proved that the frog,¶ the water-newt\*\*

\* A. Trembley. Mémoires pour servir à l'histoire d'un genre de Polypes d'eau douce.

C. Bonnet. Considerations sur les corps organisés.

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† Reaumur. Sur les diverses reproductions qui se font dans les Ecrevisses, les Omards, &c. Mem. de l'Acad. Royale des Sciences, 1712.

‡ Spallanzani. Précis d'un ouvrage sur les Reproductions Animales. Bonnet's Experiments in Spallanzani's Tracts, &c.

|| Reaumur, Bonnet, Spallanzani. J. G. Dalzell, Observations on the Planariæ, &c.

§ Trembley, ut supra.

¶ Spallanzani's Experiments on the Tail of the Tadpole. Précis, &c. Experiments on the Reproduction of the extremities of the Frog and Toad, in Troja de ossium regeneratione.

\*\* Spallanzani, ut supra.

and the lizard,\* for example, are capable of reproducing their eyes, lower jaw, tail and extremities. In the hot-blooded animals this faculty of reproduction is considerably less striking, and the instances of renewal of removed organs in birds and the mammalia are comparatively few and unimportant. Such, however, have occasionally occurred, and even in man examples of a reproduction of whole organs are not wanting, as in the case of the nails† and glans penis;‡ after a removal of the cervix uteri also, a new os tincae, more or less perfectly formed, is frequently met with, and after the excision of a joint, a new joint with all its complicated appurtenances, in greater or less perfection, has been observed. The process by which regeneration of whole organs, after their removal is effected, is essentially different from that by which the particles of such organs only are deposited as fast as they are absorbed; since, in the latter case, all that is required is to lay down new matter upon a fabric already prepared for its reception, whereas, in the former, the fabric itself has first to be formed. The manner in which this is done is considerably less obscure than that in which the subsequent deposition of the particles of each particular tissue is effected. It is very generally known, at present, that the first step of this process is the deposition, by the neighbouring capillary arteries, of a viscid substance called coagulable or organizable lymph, which constitutes the basis of the new organ, and becomes the vehicle of the blood vessels by which its molecular structure is to be afterwards determined and preserved.

Very analogous to the regeneration of organs which have been removed is the re-union of organs which have been divided; since, in the latter case, the connecting medium may be regarded as a new series of tissues,

\* Bonnet and Blumenbach. Experiments on the eyes of Lizards. Rudolphi on the Tail of the Lizard, &c.

† London Med. and Phys. Journal, 1817.

‡ Edinburgh Med. and Phys. Essays, &c.

or a new organ, interposed between the divided portions, and serving to consolidate them together. It is in this way that any accidental solution of continuity in the common integuments, as after a superficial wound in the tendons, as occurs in a rupture of the Tendo Achillis; in the cartilages, as after their division; in the bones, as after a fracture; and in the muscles, nerves and blood vessels, as after wounds severally of all these organs, is repaired. Nor is it only when each portion of the divided organ forms still a part of the body that this re-union is practicable, but it may take place even when one portion has been entirely separated from the system. It is familiarly known that if a sound tooth, which has been extracted by mistake, be immediately reinstated into its socket, it commonly adheres as firmly as ever, the separated portions of the membrane again coalescing; and not a few instances are on record of amputated parts of various other organs becoming reinstated in their original situation. One of the earliest of these is that related by Leonard Fioravanti, who lived towards the close of the sixteenth century, “concerning the cure of one who had his nose cut off, and set on again;”<sup>\*</sup> a second, of the same nature, is related by Blegny;<sup>†</sup> and a third still more remarkable by Garengot. “In the month of September 1724,” says M. Garengot, “a soldier of the regiment of Conti coming out of L’Epée Royale, from an inn in the corner of the street Deux-Écus, was attacked by one of his comrades, and in the struggle had his nose bitten off, so as to remove almost all the cartilaginous parts. His adversary, perceiving he had a bit of flesh in his mouth, spat it out into the gutter, and endeavoured to crush it by trampling upon it. The soldier, who on his part was not less eager, took up the end of his nose, and threw it into the shop of M. Galen, a brother practitioner of mine, while he ran after his adversary.

<sup>\*</sup> Secrets of Surgery, p. 54.

<sup>†</sup> Zodiacus Medico-Gallicus, 1680.

During this time M. Galen examined the nose which had been thrown into his shop, and, as it was covered with dirt, he washed it at the well. The soldier returning to be dressed, M. Galen washed his wound and face, which were covered with blood, with a little warm water, and then put the extremity of the nose into this liquor, to heat it a little. Having in this manner cleansed the wound, M. Galen now put the nose into its natural situation, and retained it there by means of an agglutinating plaster and bandage. Next day the union appeared to have taken place, and on the fourth day I myself dressed him with M. Galen, and saw that the extremity of the nose was perfectly united and cicatrized." \* A fourth case of a similar description is related by Dionis; † but in this instance the separation of the nose, which had been effected by a pair of scissars, was not quite entire. Other cases of this kind are recorded by Lombard, Loubet and others.

Nor is the nose the only organ which, when removed, may be reinstated. Dr Balfour of Edinburgh has the merit of having first explicitly called the attention of British practitioners to this interesting fact; and of having published the first well authenticated case of the complete re-union of a piece of animal matter, consisting of flesh and bone, after its entire separation from the living body. In the case alluded to, a man of the name of Peddie had lost a piece of his index finger, about an inch and a half long, by a stroke of a hatchet; and though the amputated portion was not re-applied to the stump till some minutes afterwards, when it had already become white and cold, and looked, as Dr Balfour remarks, "like a bit of candle," still adhesion took place, and a perfect recovery, in the previously separated part, of heat, and sensation. ‡ Since this case became known, many similar instances have occurred in Britain,

\* *Traité des operations de Chirurgie*, Chap. III. Art. 2. Obs. 6.

† *Cours d'operations de Chirurgie*, *Demonst.* VII.

‡ *Observations on adhesions, with two cases*, &c., 1814.

America, France and Switzerland. Bossu, a surgeon of Arras, relates a case very similar to that of Balfour; \* and it is not very long ago that an instance of the same kind occurred at St Bartholomew's Hospital, under Mr Abernethy.

But—what is still more remarkable, although equally well established—the separated parts of one organized being may be made to unite, under some circumstances, with the parts of another. Of this we have a familiar example in the well known practice of engrafting trees; and the fact is no less certain with regard to animals. The practice formerly so prevalent, of inserting the recently drawn teeth of one person into the sockets of another, furnishes a familiar illustration of it; and the experiments of Duhamel, † who frequently succeeded in fixing in this way the amputated spurs of one cock upon the comb, either of the same animal, or of another; and those of Hunter, who at one time engrafted human teeth upon the same nidus, and at another produced an adhesion between the extracted testicle of the cock and the peritoneal cavity of the hen, are often cited in proof of the tendency in question. Sir Astley Cooper also, has performed experiments similar to those of Hunter, with the same result. ‡ A case is related also by Mr Carpue, communicated to him by Mr Sawrey, of a Swedish gentleman, who, when a boy, exchanged a portion of the skin of his arm with a school-fellow of his, as a token of indelible affection. || In all these cases the first step of the process by which the union is effected seems to be, as in the case of regeneration of organs, a deposition of coagulable or organizable lymph, from both surfaces of the parts to be united, when both still constitute a part of the living body, but, of course, from one only, when one part has been totally separated, and consc-

\* Journal de Médecine.

† Mem. de l'acad Roy. des Sciences, 1746.

‡ Thomson on Inflammation.

|| Carpue. Account of two successful operations, &c.



quently placed out of the course of the circulation. In what manner this lymph becomes instrumental to the union, I shall, hereafter, endeavour to explain.

It is upon this principle of a tendency, not only to reunion in parts which have been divided, but to adhesion, under certain circumstances, in parts naturally separate from each other, and even in parts of different animals that surgeons have chiefly relied, for the relief of deformity or disease, arising either from a solution of continuity in organs, or from their partial or total separation from the body.

As one of the first instances of a practical application of this principle may be mentioned the operation described by Celsus for repairing breaches in the nose, ears and lips; in all which cases the process consisted in merely bringing the callous edges of the breach to the state of a recent wound, and then drawing the lips together, and confining them by sutures; semilunar incisions being made, if necessary, into the integuments in the neighbourhood, in order to diminish the tension of the parts, and to allow the lips of the wound to come into closer contact; the incisions being left to be filled up by granulations.\* Incisions of the integuments are recommended also by the same author in other cases, in which it is required to extend parts, beyond what is natural, as in making a preternaturally short prepuce cover the glans, which, it appears, the ancient surgeons were sometimes called upon to do “decoris causa;† “although, as well remarked by Fabricius ab Aquapendente, ‡ any great desire to render these parts attractive seems to be somewhat superfluous. Operations similar to those alluded to are mentioned also by Galen, || and Paul of Ægina, ; § but it was not till after the revival of litera-

\* C. Celsus, De Re Medica, Lib. vii. Cap. IX.

† C. Celsus, ut supra, Lib. vii. Cap. XXV.

‡ Fabricius ab Aquapendente, Chir. Op. Cap. 61.

|| Galenus. Meth. Med. Lib. XIV. Cap. 16, &c.

§ Paulus Ægineta, Lib. VI. Cap. 26.

ture, that, not only the repair of organs of which a part had been removed, but the renewal of such as were altogether wanting, was attempted in Europe, upon any thing like an extensive scale. One of the earliest attempts of this kind, and certainly the one which has attracted the greatest attention, was that of forming a new nose, which is said to have been made first in Sicily, about the year 1442, by a man of the name of Branca; and the operation seems to have been subsequently practised with success for many years, at Tropea, in Calabria, by a surgeon called Vincent Vianeo de Maida, or Bojani, and his descendants.\* The operation is mentioned for the first time by Calentius, a Neapolitan poet of the fifteenth century, in a letter to his friend Orpian, quoted by Stephen Gourmelen.† “Orpiane,” says he, “si tibi nasum restitui vis, ad me veni. Profecto res est apud homines mira. Branca Siculus, ingenio vir egregio, didicit nares inserere, quas vel de brachio, vel de servis mutatas impingit,” &c. Dr Thomson hence concludes, that the said Orpian has lost his nose;‡ but it is pretty obvious, from the general style of the letter, that Calentius, in inviting him to come and have his nose repaired, was merely imitating the jocular vein of Cicero, the model of all the letter-writers of that period. It has been suggested, that the practice of Branca probably originated in the extensive destruction of noses which, about that period, was taking place in Italy from the venereal disease, which now for the first time ravaged Europe in general, and Italy in particular; but the reputedly first appearance of the venereal disease was at the siege of Naples, in 1494; whereas the operation of Branca preceded this by half a century. It is infinitely more probable that it was derived from the East, with many of the countries of which the inhabitants of Italy and

\* Schotti. *Italia Illustrata*, 1610. *Fragori Trattato*, &c. 1639.

† Gourmelenus. *Chirurgia*, Lib. I.

‡ Thomson on Inflammation.

Sicily, so recently overrun by the Arabs, kept up, at this period, a very considerable intercourse; and where—as we shall presently find—the operation in question, although performed in a somewhat different manner, had been continually resorted to, from the most ancient times. The operation of Branca is described for the first time by Alexander Benedetti, who taught Anatomy at Padua, about the year 1495. He makes no mention, as Calentius has done, of borrowing the noses of other people, in repairing those of our patients; but describes the substance for the new nose as always taken from the flesh of the arm, a portion of which was first laid bare with a razor, and with this the scarified edges of the nostrils were kept in contact till adhesion had taken place, when so much as was wanted for the restoration of the nose was removed with a knife. He observes, however, that these new noses do not well resist the cold of winter; and, with considerable caution, he recommends, that they be not laid hold of, lest, peradventure, they should come off—“nasum neprehendat moneo, ne sequatur!”\* Some half century after the time of Benedetti, the operation was again alluded to by Gabriel Fallopius; but it appears to have made but little progress during this period, since he speaks of it only as a matter of hearsay. † It was more explicitly mentioned, however, soon after by Ambroise Paré. “There was a surgeon of Italy,” says his translator, “of late years who would restore or repair the portion of the nose that was cut away, after this manner. He first scarified the callous edges of the maimed nose round about, as is usually done in the case of hare-lips: then he made a gash, or cavity in the muscle of the arm, which is called *Biceps*, as large as the greatness of the portion of the nose which was cut away did require; and into that gash or cavity so made, he would put that part of the nose so wounded, and bind the patients head to his arm

\* A. Benedictus. De Prax. Med. Lib. IV. Cap. 39.

† G. Fallopius. De Decoratione, Cap. 2.

as if it were to a post, so fast that it might remain firm, stable, and immoveable, and not lean or bow any way; and about forty days after, or at that time when he judged the flesh of the nose was perfectly agglutinated with the flesh of the arm, he cut out as much of the flesh of the arm, cleaving fast unto the nose, as was sufficient to supply the defect of that which was lost, and then he would make it even and bring it, as by licking, to the fashion and form of a nose, as near as art would permit; and in the meanwhile he did feed his patient with Panadoes, Gellies, and all such things, as were easie to be swallowed, and digested. And he did this work of curing the place where the flesh was so cut out, only with certain balsms, and agglutinating liquors. A younger brother of the family of St Thoan, being weary of a silver nose, which being artificially made, he had worn in the place of his own nose that was cut off, went to this Chirurgeon into Italy, and by means of the foresaid practice, he recovered a nose of flesh again, to the great admiration of all those that knew him before. The thing truly is possible to be done; but it is very difficult, both to the patient suffering, and also to the Chirurgeon working. For that the flesh that is taken out of the arm is not of the like temperature, as the flesh of the nose is; also, that the holes of the restored nose cannot be made as they were before.\*

Parú's work in French, was printed in 1561, and was followed seven or eight years afterwards, by that of the celebrated Andrew Vésali, the reputed father of modern anatomy, who likewise gives an account of this operation. According to him, the patient being first well purified by bleeding, purging and so forth, a portion of the Biceps muscle, near its tendon, was gradually, day by day, separated from the contiguous parts, till it could be altogether raised from them: the upper fleshy portion of the muscle was then cut through, when the nostrils,

\* The works of that famous Chirurgeon, Ambrose Parey—translated by Th. Johnson, page 526.

previously scarified, were brought into contact with the flap—being, as it were, hidden under it—and so held, by bandages and ligatures, forty days. The upper fleshy portion of the muscle was then pared down, and fixed by sutures to the nose till they united; and the lower portion of the muscle being afterwards cut through, the mass of flesh, thus attached to the nostrils, was at length modelled into a nose in the best way possible; a strict plan of diet, and a great variety of conglutinating medicines, being in the mean time assiduously employed.\* Most of the foregoing authors are quoted by John Schenck, who wrote in 1584, a hundred and forty-two years after the time of Branca, and who still describes the operation as “nova et inaudita.”† It is indeed extremely probable that it was during the whole of this period confined to the Bonjani of Calabria; and that neither Benedetti, Paré or Vésali had ever either performed it, or seen it performed; although the last seems desirous of implying that he had resorted to it, by the continual use which he makes of the first person plural. He would not, however, had this been the case, have described, like all the rest, the Biceps muscle as employed in forming the new nose; since it is more than likely, that the original performers of the operation, like their celebrated successor Tagliacozzi, used only the integuments of the arm for this purpose.

Gaspar Tagliacozzi was a cotemporary of Paré and Vésali, and for many years filled the chair of anatomy and medicine in the University of Bologna. He was the first to devote himself with particular zeal to the operations for renewing lost noses, ears and lips; by which he acquired so great celebrity, that the operations in question have become, as it were, identified with his name, and it is not an uncommon error to imagine that he was their inventor. A statue of him, with which his memory was honoured by the magistracy

\* Vesalius. De Vulneribus, Lib. III. Cap. 9.

† Schenkus. De Naribus, Observ. 8.

of Bologna, may still be seen, if it has not been very recently removed, in the anatomical theatre of the university of that city, holding out a nose in commemoration of his skill in renewing that organ; and there is a marble tablet, set up by the Faculty of Bologna in the same place, setting forth all his excellencies in this department of surgery. Tagliacozzi had long been resorted to by persons from various parts of Europe whose noses or other organs required repairing, and frequently referred to by his cotemporaries, as a most successful operator in this way, before he published any account of his method; which at length appeared first in 1587, in the form of a letter to Jerome Mercuriali—who had previously promulgated all he knew of it, in a Tract entitled *De Decoratione*—and next in 1597, in the form of a portly volume in folio.\* The work is divided into two books, the former of which contains twenty-five chapters, and the latter twenty. It was the practice of the artificial age in which he lived to treat of every subject, however insignificant, with great prolixity, and a vast parade of logical precision and erudition, and certainly Tagliacozzi was not behind hand in these respects; but in the midst of a great deal of very irrelevant and fatiguing mummery, we meet with many indications of sound sense and good pathology. The principles of the art, he tells us in the twelfth chapter of the first book—for the first eleven are taken up with establishing the dignity of the nose, lips and so forth—are derived from the practice of engrafting trees; and he afterwards discusses with a great degree of precision the question whence the *trudux*, or graft, should, in the attempt to renew the nose and lips, be derived, and whether from the body of the patient himself, or from that of another person, concluding at length that the skin of the arm is better adapted for the purpose than that of the forehead, or any other part, and that a man's own skin is more ger-

\* Gaspar Taliacotius. *De Curtorum Chirurgia per Insitionem*. Venetius, 1597.

mane to the matter than that of any body else. In describing the *skin* of the arm, and not the *muscular part*, as the proper material for the new organ, Tagliacozzi differs from all his predecessors; and his explicit rejection of the flesh of other persons in his operations might have saved him from the ridicule to which he was afterwards subjected, and to which I shall presently have again occasion to allude. In examining the question how the new organ is nourished, he describes this as effected by the formation of new vessels extending between the old and new parts; and conceives that these proceed, in the process of their developement, rather from the former to the latter, than in the opposite direction. In the second book, Tagliacozzi proceeds to the details of his operations, which are given with almost ludicrous verbosity.

In renewing the nose, a square or oblong portion of the integuments of the arm of the requisite size was first marked out, and being then squeezed up with what he calls a tenaculum, two incisions were made, one on each side in the length of the arm: the skin was afterwards separated, so that a piece of linen might be passed between it and the subjacent muscle. In this state, it was "nourished" for fourteen days, when it was in a condition to be divided at the upper part, so that when laid over the nostrils the natural surface of the skin might be outside; it was now again "nourished" for about ten days more. At this period the patient put on a dress by which the arm could be immovably fastened to the head; and, this done, the margins of the nostrils having been scarified were so applied to the flap, that it entirely covered them, the flap having been previously shaped after a model of paper, as nearly as possible in the form of the nose required, and the two were thus fastened together by sutures. At the end of twelve days the graft was entirely cut away from the arm, which was then released from the face; the remaining part of the operation consisted in forming the nostrils,

and keeping them open by metallic tubes, &c. The operations for forming new lips and ears are described in the two last chapters of the work; the former being renewed in a similar manner from the skin of the arm—only that in renewing the upper lip, the upper portion of the flap, and in renewing the lower lip, the lower portion was first cut through—but the latter from the integuments of the neighbouring parts. In reading the work of Tagliacozzi, in which, as stated in one of the numerous complimentary poems, which, after the manner of the age, are prefixed to it,

“Naturam hic superans, alios, se ipsum, et simul artem  
Primus membra hominis hic renovare docet,”

one is at a loss whether more to admire the indefatigable care and perseverance with which he prosecuted his operations, or the inexhaustible patience of those who submitted to them; but it is unquestionable that his success was wonderful, though only commensurate, probably, with this excessive attention to minutiae, on which the result of operations of this kind appears so much to depend.

A pupil of Tagliacozzi and his successor in the chair of Surgery and Anatomy, at Bologna, was John Baptist Cortesi, who both describes the operations of his predecessor, and states that he himself had often repeated them with success.\* The same practice had previously been advocated by Thomas Fyers, of Antwerp, another pupil of Tagliacozzi, who mentioned that he had seen many noses restored by it, although he seems to have been sufficiently alive to many of the objections to which it is liable, particularly to the tendency of the nostrils to close, and the unnatural thickness of the alæ.†

In the mean time the plan of Tagliacozzi had been adopted by one “Dominus Griffonus,” of Lausanne,

\* Cortesius. *Miscellanea Medicinalia*.

† Fierus. *Libri Chirurgici*. Tract. XII.



the preceptor, as it seems of De Hilden, who had accidentally met with a person, whose nose had been restored by Tagliacozzi, and he performed the same operation in 1592—some years before the appearance of his great work—on a poor girl whose nose had been amputated by some soldiers, into whose hands she had fallen, and who had in vain attempted to ravish her.\* She was living at Lausanne when De Hilden wrote; and the nose was scarcely distinguishable from a natural one, except that the tip of it, was apt to get a little purple in winter, when the weather was particularly cold. In a letter to Griffon, De Hilden informs him that she married ten years after the operation; † although, in another account, he describes her as living still in a state of celibacy, in 1613. It was about this time that Vincent Crucius, who then filled the medical chair in the University of Rome, thought proper to represent the art of renewing noses as impracticable. “Non audiendos eos,” says he, “qui amputatos nasos restituere pollicentur; nam natura tantum artificium nemini concessit. ‡ Vigier also, though he describes the operation of Tagliacozzi, dissuades from it, on account of the supposed different characters of the flesh of the arm and of the organ to be renewed from it; || and it was made a question by Zacchias how far it was justifiable in a juridical point of view. §

The practice appears, nevertheless, to have gained ground, at least in Italy. Antonio Molinetti, ¶ wrote in its favour; and we are informed by Fortuné Liceti of a singular abuse of the principles upon which it was founded—which seems soon after its introduction to have been not

\* Fab. Hildanus. *Observat. Chirurg. Cent. III. Obs. 31.*

† Fab. Hildanus. *Epist. LXII.*

‡ Crucius. *Chirurgia, Lib. II. Cap. 3.*

|| Vigierus. *Chirurgia, Lib. II. Cap. 20.*

§ Zacchias. *Questiones Medico-legales. Lib. VIII. Tit. 2. Quest. 4.*

¶ Molinetus. *Dessertationes Anat. et Pathol. de sensibus et eorum organis.*

uncommon—that of producing adhesions between various parts of the body, or even between the parts of one body and those of another, in order to present an appearance of monstrosity; and it is said that mountebanks not unfrequently joined together two children in this way by their backs, hips, arms and other organs, and afterwards exhibited them for the sake of gain.\* Of the authors who distinguished themselves, during the last century, as advocates for the operations of Tagliacozzi, some of the principal are Schultzes, Renaulme, Rosenstein and Dubois; among those who opposed them, we find the names of Dionis, Heister, Eloy and Petit-Radel. Dionis indeed goes so far as to say that all the histories of noses and other organs renewed in this way are “apocrites,” and represents them as rather “des contes faits a plaisir, que des faits veritables,”† and Heister describes the operation as very seldom successful.‡ In Great Britain the Taliacotian art seems never to have attracted much attention; indeed it appears to have been regarded by all classes of persons in no other light than as a subject of ridicule, originating, as is frequently the case, in ignorance. It has been the general impression in this country that Tagliacozzi was in the habit of renewing lost noses, not from the arm of the patient himself, but from various organs of other persons; and from some absurd stories, propogated soon after the introduction of the art by Van Helmont, || Fludd § and others, that parts, so transplanted, participated in all the subsequent diseases of their original proprietors, and at their death dropped off, the whole thing was rendered ludicrous, and spoken of, in general, only as a

\* Licetus. De Monstrorum Causis. Lib. II. Cap. 29.

† Dionis. Operat. de Chirurgie Demonst. 7.

‡ Heisterus. Chirurgia, Pars II., Sect. 2, Cap. 73.

|| Helmontius. De Magnetica Vulnerum Naturali et Legitimâ Curatione, &c., § 23.

§ Sir Kenelm Digby. Discourses on Sympathy, p. 115.

fairy tale. The lines of Butler on this subject are universally known :

“ So learned Taliacotius, from  
The brawny part of porter’s bum,  
Cut supplemental noses, which  
Would last as long as parent breech ;  
But when the date of Noch was out,  
Off dropped the sympathetic snout. \*

Even John Hunter, who ought certainly to have known better, betrays the same ignorance as most other British writers, on the practice of Tagliacozzi ; † but whatever was the cause of it, the art certainly never made any progress in this country, nor indeed, with the exception of a few instances, ever extended beyond the confines of Italy. Perhaps the less frequent occasion for it elsewhere, and the less favourable nature of the climate may contribute to explain this circumstance ; but it is certain that it was never popular in Germany, France, or Great Britain, and that at the time of the introduction into Europe of the Indian manner of operating, of which I am immediately to speak, the art of renewing noses had sunk into comparative oblivion.

Such then was the original plan, at least in Europe, of restoring lost or mutilated noses, lips and ears ; and in the mean time that of other organs—palate, prepuce, urethra, or perineum—in which there was a breach of continuity, was seldom, if ever attempted.

The inconveniences arising from deficiencies of the palate were commonly obviated, as far as possible, by inserting sponge into the fissure ; ‡ or sponge soaked in melted wax ; § or by adapting to it a metallic plate, §

\* Hudibras. Canto I.

† Hunter on Inflammation.

‡ Amatus Lusitanus. Cur. Med. Cent. 5.

§ Hollerius. De Morbis Internis. n. 4.

§ Heisterus. Chirurgia Pars II. Sect. 2. Cap. 92.

Knackstedt. Anat. Med. Chir. p. 257.

Siebold. Chir. Tagebuck, n. 20.

Autenreith. Hist. Enb. Hum. &c.

upon the same principle as metallic noses were in general request, before the art of making them of flesh was discovered. A method of *elongating* the prepuce, as I have already mentioned, was recommended by Celsus; and the operation for separating it from the glans, when the two adhered together, was described successively, by Celsus, \* Paul of Ægina, † De Hilden, ‡ Fabricius ab Aquapendente, || Dionis § and many others; but no means of forming a new one appears to have been hitherto suggested. So also a solution of continuity in the urethra, if it could not be cured by escharotic substances, ¶ or by a seton, \*\* was commonly let alone, its inconveniences being obviated, as far as possible, by bougies and so forth; †† and a similar breach in the perineum, if it could not be repaired by caustics ‡‡ or by a suture, ||| was in general regarded as incurable. The plan of filling up any of the deficiencies in question from the skin of contiguous parts, seems hitherto, never to have been adopted.

I have already mentioned that Tagliacozzi, although in renewing noses and lips, took his materials from the skin of the arm, in repairing ears, was accustomed to employ that of the neighbouring parts; but it was probably Chopart who first followed this plan in repairing lips, §§ and how well it was adapted also for the renewal of noses, was soon after universally acknowledged.

\* C. Celsus. Lib. VII. Cap. 25.

† Paulus Ægineta. Lib. VI. Cap. 56.

‡ Hildanus. Obs. Chirurg. Cent. III. Obs. 54.

|| Fabricius ab Aquapendente. Chir. Op. Cap. 62.

§ Dionis. Operat. de Chirurgie. Demonstr. 3.

¶ Langius. Epist. III. n. 5.

\*\* Burt. Duncan's Ann. of Med. Vol. III.

Wilkinson. London Med. and Phys. Journ. 1788, &c.

†† Cassamajor. Lalouette, &c. Dissertationes.

‡‡ Scheffler. Hufeland's Journal, XIII. 3.

||| Windelstadt. Hufeland's Journal, XV. 3.

Mursinna. Loder's Journal, I. p. 658.

Menzel. Loder's Journal, II. 1. &c.

§§ Boyer. Lectures on Inflammation, p. 230.

It was not till quite at the close of the last century that it became generally known in Europe, that the nose operation had been a very common one in India from time immemorial; but that it was there performed in a manner very different from that hitherto described. Perhaps the first public account of this operation was given in the *Gentleman's Magazine*, for 1794, in which is related the celebrated case of Cowasjee. This man was a bullock driver in the English army in India during the war of 1792, and having been taken prisoner by Tippoo, and deprived of his nose and one of his hands, was supplied with a new nose, after an interval of twelve months, by a Mahratta surgeon. Four others also, who had been fellow-sufferers with Cowasjee, had their noses reinstated in a similar manner. They were all living on pensions at this time at Poonah; and the operation was suggested by the circumstance of a native merchant coming one day to the house of Sir Charles Warre Malet, the British resident in that city, with a scar on his nose and a second on his forehead, and on being questioned as to the occasion of them, stating that he had been deprived of his original nose by the executioners, as a punishment for adultery, but that he had been furnished with a new one by an artist, who lived where he resided, and who frequently did the same for others. Sir Charles on receiving this account, caused the operator to come to Poonah—a distance of four hundred miles—where he performed the operation on the above mentioned five individuals. It is described upon the authority of Mr Thomas Cruso and Mr James Findlay, of Bombay—both of whom had seen it performed,—in the following words. “A thin plate of wax is fitted to the stump of the nose, so as to make a nose of good appearance; it is then flattened and laid on the forehead. A line is drawn round the wax, which is then of no further use; and the operator dissects off as much skin as it covered, leaving undivided a small slip between the eyes. This slip preserves

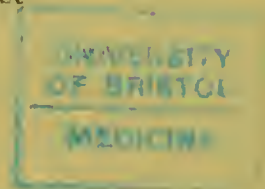
the circulation until union has taken place between the new and old parts. The cicatrix of the stump of the nose is next pared off; and immediately behind this raw part, an incision is made through the skin, which passes round both alæ, and goes along the upper lip. The skin is now brought down from the forehead; and, being twisted half round, its edge is inserted into this incision; so that a nose is formed with a double hold above, and with its alæ, and septum below, fixed in the incision. A little Terra Japonica is softened with water, and being spread on slips of cloth, five or six of these are placed over each other, to secure the joining. No other dressing than this cement is used for four days; it is then removed and cloths dipped in *ghee* (a kind of butter) are supplied. The connecting slip of skin is divided about the twenty-fifth day; when a little more dissecting is necessary to improve the appearance of the nose. For five or six days after the operation, the patient is made to lie on his back; and on the tenth day, bits of soft cloth are put into the nostrils to keep them sufficiently open. This operation is always successful. The artificial nose is secure, and looks as nearly as well as the natural one; nor is the scar on the forehead very observable after a length of time." \* A portrait of Cowasjee, with his new nose, accompanied this description; and a second detached portrait, with an account of his case engraven under it, was soon after very generally exhibited in the picture shops of London. Mr Pennant in his history of Hindostan, published in 1798, likewise gives an account of this operation; and mentions, that the case of Cowasjee is related in the Hircarrah, or Madras Gazette, of August 5, 1794. He is mistaken, however, in representing the Indian artists as having derived the practice from Europe, and the operation as merely a revival of the Taliacotian art; † since its origin in India was

\* Gentleman's Magazine, 1794.

† Pennant. History of Hindostan, 1798.

unquestionably of a date long anterior to the time of Tagliacozzi, or even of Branca, the latter of whom in all probability derived his operation rather, as already remarked, from the suggestion of the Indians. Mr Pennant, moreover, has fallen into the common error of supposing, that Tagliacozzi was accustomed to renew noses, not from the flesh of the patients themselves, but from that of other persons; but this is very excusable in him, when we find the same error prevalent among professional men, and those too, of the highest reputation. At the time of the removal of Cowasjee's nose, it was generally understood at Poonah that the operator was the only one in India; but that the art had been long hereditary in his family, as the corresponding European operation appears to have been for many years in that of Bojani. According to Mr Pennant, however, it is practised generally by the "Koomas, a caste of Hindoos," corresponding apparently to Potters and Brickmakers, by whom alone according to Sir C. W. Malet and others, this operation is ever undertaken. It appears, moreover, that the same persons are accustomed to renew lips with equal success; and that the operator who came to Poonah, to perform on Cowasjee and his companions, expressed a wish to operate on the eldest son of the British native ambassador, at the Paishwah's Court, who had lost part of his upper lip, but who, it appears, would not submit to the experiment.

Nor is it perhaps difficult to account for both the antiquity and prevalence of these operations in India, and for their being exclusively in the hands of a class of persons, who might be supposed at first sight, so ill qualified to perform them. In the semi-barbarous districts of this country the amputation of the Nose and Lips, as well as of other members, seems to have been from time immemorial one of the most common punishments of prisoners of war, as well as of civil delinquents of all descriptions; and the slightest



observation of the facility with which divided or scarified parts united, could not fail very soon to suggest to the inhabitants of these districts—in every respect so favourable for an operation of this description—some expedient to repair so common and so hideous a deficiency. The fact to which I have before alluded, but which does not appear to have attracted attention in Europe before the times of Fioravanti, Blegny and Garengot, that a recently removed nose, if re-applied to the face, would adhere as firmly as ever, seems to have been known in India from the earliest periods; and accordingly we are informed by Dr Ruddiman, that the common *chuckler*, or executioner, by whom the noses of culprits are cut off in the *bazar* or market place, always throws the said noses into the fire, “because,” say they, “were the offender to have possession of his nose, he would have nothing more to do, than the moment it is cut off, to put it into its proper place, well secured, where it would unite, and be as good as ever again.” \*

A knowledge of this fact would soon lead to the attempt to form an artificial nose from other parts of the sufferer’s person; and the greater simplicity of the Indian than of the European method of effecting this, is a further argument of the greater antiquity of the former method. We may form some idea of the horrible extent to which the amputation of Noses and Lips was formerly carried in India, and the frequency and urgency therefore of the calls upon human ingenuity to repair the loss so sustained, by the following narrative related by Father Guiseppe, of a fact which occurred no longer ago than the year 1769, or 1770. “The city of Kirtipoor, in Nepaul, being besieged by the Ghoorka army, was betrayed by one of its nobles. The inhabitants might still have stood on their defence, but on the promise of amnesty, they surrendered themselves prisoners. Two days afterwards, Pritwinarayan the king of

\* Ruddiman, quoted by Carpue. Account of two successful operations, &c.



Ghoorka, their conqueror, ordered the principal persons of the town to be put to death, and the lips and noses of every one, even the infants who were not found in their mother's arms to be cut off; directing at the same time that the lips and noses should be preserved, that he might ascertain the number of souls, and that the name of the town should be changed into *Nascatapoor*, which signifies (such relationships have the languages,) Nose-cut-town. The order was carried into execution with every mark of horror, and cruelty, none escaping but those who could play upon wind instruments. Many of them, in despair, put an end to their lives; others came to us, in great bodies, in search of medicines, and it was most shocking to see so many living people with their teeth and noses resembling the skulls of the dead." \* Similar instances more recently occurred in the island of Ceylon, under Scindeah Rajah; and a direct example of the same kind has been related in the case of Cowasjee and his unfortunate comrades. With respect to the monopolization of the operation for renewing Noses and Lips by the Koomas, or Potters and Brickmakers, it is well known that the Hindoos in general are divided into numerous Castes, to each of which certain avocations are exclusively assigned. The range of these among the higher Castes is very confined; but it becomes more extensive as we descend to the lower. It is the degraded Brahmins alone, who exercise the trades of Potters, Brickmakers, Weavers, Fishermen, Braziers and workers in Shells, but to the same Caste belong the task of making Almanacks and the profession of Astrology, as well as the occupations of teaching Military exercises, and of practising and teaching Physic; † so that it is easily understood how the heterogeneous pursuits of Pottery and Surgery should, among these people have been united.

\* Father Guiseppe's Account of Nepaul in Asiatic Researches.

† Mrs Graham's Letters on India.

It appears that the Indian operation for the renewal of noses had been adopted with success by British Surgeons resident in India, in several instances, previously to its being made known in this country; but the first case that we hear of, in which it was attempted in London, was in 1803—nine years after the publication of Cowasjee's case—and in this instance without success. In 1813 the Lip operation was successfully performed in this country by Mr Lynn, and again soon afterwards by Mr Sutcliffe; but it can hardly be said that these operations were borrowed from the Indians, since, as I have before observed, they had long before been performed by Chopart.

It was not till 1814—twenty years after its being first made known in this country—that the Indian operation for the renewal of lost noses, was resorted to with success, among us, and publicly advocated. In a work published by Mr Carpue of London, in the year 1815,\* almost every thing which was at that time known, as well of the Italian, as of the Indian method, was, for the first time presented in a collected form to the public; and the details of two cases are subsequently given, in which the operation, performed by Mr Carpue after the latter method was eminently successful. The first was that of an officer of the Army, who had lost his nose from the abuse of Mercury, taken for a liver complaint; the second that of the gallant Captain Latham, a great part of whose nose had been cut off by a sabre at the battle of Albuera. In the first of these cases Mr Carpue proceeded with very great caution. Considering that the parts had sloughed off from disease, he first ascertained that they were disposed to undergo the healing process, by making incisions near the remains of the *alæ*, under pretence of preparing for the operation; and he performed it no fewer than eleven times on the dead subject, previously to undertaking it on his patient. His manner of operating

\* Carpue. Account of two successful operations, &c.

did not materially differ from that already described as the Indian method; he used like them, a wax model, but unlike them, he pared away the cicatrix of the stump of the nose, and thus prepared the face for the reception of the flap from the forehead before proceeding to dissect this off; he used ligatures also to confine the recently applied parts, and brought the edges of the wound in the forehead as nearly as possible together by adhesive plaster. Adhesion had taken place in every part by the third day; but the new nose was perfectly flat and rose and fell with every act of respiration: it came, however, gradually to project by thickening; the ligatures were all removed on the sixth day, and by the third month the forehead was healed, leaving a very inconsiderable scar, and the appearance of the new nose almost natural. The other case was nearly similar to this, except that only one side of the nose required to be reinstated; it, like the former was attended with the happiest results. The example of Mr Carpue was followed in 1818 by Mr Copland Hutchison, who published an account of the third case of the Indian operation performed with success in this country; his patient was a woman who had lost every part of her nose from gangrene.\* Soon afterwards the same operation was undertaken at St Thomas' Hospital in London, but it appears to have been unsuccessful; and it was for the purpose of obviating any impression prejudicial to the operation, that, in 1823, Mr John Davies published another successful case of it—under the improper appellation however, of “Taliacotian operation”—performed on a man who had lost his nose from Syphilis; at the end of three weeks the patient left town perfectly cured.† In 1827 a similar case of what is correctly called the “Indian operation” was published by Mr Liston;‡ since which

\* Hutchison. London Medical and Surgical Journal, Vol. XIV.

† Davies. London Medical Repository. *New Series*, Vol. I.

‡ Liston. Edinburgh Medical and Surgical Journal, Vol. II.

it has been repeated in Scotland by the same gentleman and performed by Professor Lizars and myself.\*

Such then are the principal methods of renewing lost Noses and Lips, or parts of Noses, more recently introduced into Europe, as contrasted with the chief plans formerly had recourse to. To the Taliacotian method may be objected, besides the excessive irksomeness of the process, the preternatural thickness in general of the alæ, and the great tendency of the nostrils to close; to the Indian, the frequent contraction of the base of the new nose, so that the dorsum and tip appear to be preternaturally broad, and the scar on the forehead, which is sometimes a very considerable deformity. The plan proposed by Dieffenbach, as will be seen in the course of the translation, varies with the particular kind of mutilation which the nose has sustained. Our author, moreover, has not confined himself to the renewal of the nose, besides this he describes a method of forming new lips, when these have been destroyed by disease, and excessive contraction of the mouth has been the result. He treats also of the restoration of the prepuce, and of the velum of the palate. He gives an elaborate and full account of several cases in which the operation for lacerated perineum was performed, and a short history of an attempt to renovate a portion of the urethra, in a case where a considerable gap had been produced after stricture. Operations for remedying deformities of the eyelids and ears also, come under his consideration; but these divisions of his work I do not at present intend to lay before the English reader. The defects they propose to alleviate are not often to be met with among us; "the whole work" however, as observes a reviewer in the *Edinburgh Medical and Surgical Journal*, "is full of interest to the operating Surgeon, on account of the ample list it contains of well described and instructive cases. It likewise displays much originality on the part of the author in the conception and

\* Appendix.

conduct of operations, and shews how certain important operations may be performed by new methods, which are likely to extend the boundaries of operative surgery, and to add to some of its branches increased facility of execution and probability of success."

With respect to the restoration of the palate, prepuce, urethra, perineum or other organs when mutilated or destroyed, the principal improvement recently made has been the operation introduced in 1819 by Mr Earle, \* for repairing a breach of continuity in the urethra. In the case which is the subject of Mr Earle's paper, the man had lost above an inch of the canal of the urethra behind the scrotum, the urine and semen being voided of course by the opening in the perineum, while the anterior portion of the urethra had become by disease exceedingly contracted. The first steps of the process consisted in attempting to dilate the contracted portion of the urethra, and to relax as far as possible the integuments on one side of the perineum, so that they might be more easily drawn over the aperture. This done, a groove of the requisite length was cut in the integuments on one side of the perineum, while a flap of a corresponding size was dissected from the other; and this being afterwards drawn over a catheter, already introduced into the urethra, was inserted by its edge into the groove already mentioned, and retained there until the two united. It was not, however, until after repeated attempts that this operation fully succeeded. Two similar operations were soon after undertaken by Sir Astley Cooper, † but in neither of them was the breach so extensive as in the case just related, nor were the operations performed in a precisely similar manner. It is unnecessary, however, to enter into the particulars of these operations, especially as it is not my intention, at this time to lay before the reader the plans adopted

\* Earle. On the re-establishment of a canal in the place of a portion of the urethra.

† Sir A. Cooper. Surgical Essays, Part II.

by Dieffenbach in similar cases; it remains only at present, therefore, necessary to subjoin a few remarks on the nature of those processes on which we rely for their successful termination. These processes are principally three—to one, I have already shortly alluded, but concerning all of which it is my intention to enter more fully into detail—namely, that by which recently divided parts, if kept in contact, contract adhesions with each other; that by which mucous membranes, when brought to the surface of the body, take on the character of the common integuments, and the common integuments, when made to line canals or cavities, take on that of mucous membranes; and that by which the exposed raw surfaces of membranes throw up granulations, and in this manner acquire the requisite thickness and solidity.

I have already observed that the first step in the agglutination of recently divided parts is the deposition, by the neighbouring capillary arteries, of a viscid coagulable lymph, forming the vehicle of the new blood-vessels, by which the organization of the connecting medium, and its union with the contiguous tissues are effected. It was formerly supposed that these effects were brought about, at least in some instances, by means of the blood deposited immediately by the divided vessels; and this opinion, which was that of John Hunter, has been more recently advocated by Sir Everard Home. In favour of this opinion it is alleged that the colouring matter of the blood is usually found to be absorbed, when a coagulum has lain long in the body; and that such a coagulum frequently presents an appearance of regular structure. Sir E. Home moreover, in conjunction with his coadjutor Mr Bauer, not satisfied with presuming that the blood in such instances becomes organized, has endeavoured to explain in what manner this is effected. According to him, \* during the coagulation of the blood—and the same he

\* Sir E. Home. Croonian Lectures in Phil. Trans. 1818 and 1819.

presumes to be the case also with both Lymph and Pus, —a certain quantity of Carbonic Acid is extricated, by which means a kind of net work of minute canals is left in the mass; and it is by the passage of the liquid blood from the neighbouring vessels into these canals that the subsequent organization, as well of the blood, as of the Lymph and Pus, is effected. A similar doctrine with respect to the formation of new channels in various substances, vegetable as well as animal, by the evolution from them, under certain circumstances, of Carbonic Acid, had been previously promulgated by Borelli, Tabor, Hales and others; and the hypothesis of Sir E. Home, in this instance, seemed to be supported by the statements of M'Bride, \* Vogel, † Brande ‡ and many others, who asserted that the liquid blood contained a considerable proportion of free Carbonic Acid, which was extricated from it during its coagulation. The truth of this statement, however, was subsequently questioned by Dr John Davy;|| and the fallacy of the experiments upon which it had been founded, was soon afterwards distinctly shown by the late Dr Duncan, § who satisfactorily demonstrated that if blood were allowed to coagulate under the ordinary pressure of the atmosphere, and not—as in the experiments first alluded to—under the exhausted receiver of an air-pump, not a particle of Carbonic Acid escaped from it in the process. The reticulated appearance also, noticed by Sir E. Home as displaying itself in coagulated blood, has been observed by others in numerous other substances certainly inorganic, and—what is still more in point—has never been noticed by the most accurate observers in lymph, which is certainly the usual medium of adhesion in these cases, during the process of its organiza-

\* M'Bride. *Experimental Essays*, 1767.

† Vogel. *Annales de Chimie*, 1816.

‡ Brande. *Phil. Trans.* 1818.

|| Davy. *Phil. Trans.* 1823.

§ Duncan. *Edinburgh Medical and Surgical Journal*, 1825.

tion ; \* so that we can hardly refuse to believe that this appearance is produced by some simple mechanical change in the substances which display it, and that it is altogether independent of organization. It is well known likewise that blood, effused between the lips of a wound, if not absorbed, constitutes generally an insuperable hindrance to its healing, during which process the place of the blood is perhaps always supplied by exuded coaguable lymph ; and that when laid down in Sanguineous Apoplexy or contained in Aneurisms, under circumstances the most favourable to its organization, it never undergoes this change : and these circumstances, in conjunction with the very inadequate explanation which has been given of the manner in which the supposed organization of the effused blood is brought about, seem quite sufficient to justify us in concluding that blood is never the medium by which the organized connection of divided parts is effected.

Presuming then that this medium is always, at least in the process of healing by what is called the First Intention, coagulable or organizable lymph, it becomes a question first, by what process is such lymph deposited by the contiguous capillary arteries ; and secondly, by what process does it subsequently become furnished with vessels of its own ? With respect to the first question, we can have little hesitation in believing that the deposition of the lymph, in these instances, is the result of some degree of inflammation in the vessels from which it proceeds, which, being overloaded with blood, seek in this way to free themselves from a part of their contents. When any vascular organ is divided, the hemorrhage which follows from the capillary vessels soon ceases, their cut extremities becoming closed, and the blood stagnating in them for some little space on each side of the wound—generally as far as the place where the nearest anastomosing branch is given off. In the mean time

\* Thomson. Lectures on Inflammation. Charles Parry. Additional experiments on the arteries, &c.



the capillary vessels in the neighbourhood of the wound which have been injured, being compelled to transmit a greater quantity of blood than before, became dilated; and in this dilation by blood of the capillary vessels of any part consists the essential character of inflammation, which is followed in this instance as well as in most others by a preternatural deposition from the vessels which are the seat of it. It is only under favourable circumstances, however, that this deposition is of organizable lymph—which generally takes place in man in about twelve or fourteen hours after the injury\*—and it is certain that this deposition is effected by the entire, and not by the divided vessels; since, independently of the latter having become already obliterated, a similar deposition often takes place, as in the case of preternatural adhesions of serous membranes where no vessels have been divided. I forbear to enter upon the inquiry whether this deposition of lymph is to be regarded as the result of a mere mechanical exudation, or a proper secretion from the vessels in question; since it is a dispute probably *de verbo* rather than *de re*, and cannot certainly be prosecuted with any advantage until we know considerably more of the nature of secretion than is the case at present.

The other question—by what process does the deposited lymph become subsequently furnished with vessels of its own—is one of considerable delicacy and interest. On this subject two principal opinions are entertained; the one, that the new vessels are formed by the shooting into the lymph of branches from the vessels of the contiguous parts; the other, that the lymph contains within itself, from the first, the rudiments of these new vessels, and that it is by their subsequent developement alone that they become continuous with the vessels of the neighbouring organs—and it is not improbable that the organization of the lymph may be effected partly in the one way, and partly in the other. I have already alluded to the analogy which subsists between the occasional

\* Sir A. Cooper. Surgical Lectures, 2d Edition, p. 42.

regeneration of organs which have accidentally been removed from the bodies of animals, and the re-union of parts which have been divided ; and the same analogy seems to subsist between both these processes and that by which the several organs are formed, *de novo*, in the embryo. Now, as far as observation has hitherto gone, it appears that the vessels of each organ, in the progress of its original formation, are generated partly by the shooting into its base of the vessels of the contiguous parts, and partly by the development within it of vessels proper to itself, which only subsequently become connected with those of the surrounding parts. The recent observations of Professor Doellinger\* seem to be almost sufficient to establish this ; although his conclusions are less objectionable with respect to the latter mode of formation, than with respect to the former. In watching the development of a young fish embryo, he frequently observed globules of blood escape from a capillary vessel, and pass into the contiguous intervascular space, continuing to move forwards in it, till they met with some other capillary branch into which they fell ; and these, he states, were succeeded at intervals by other globules, which followed the same course, till at length a new vessel, in the line of these globules, was completed. It is not certain, however, that the globules in question did not, in fact, pass into vessels already pre-existing ; and indeed the very determinate course which the vessels of animals usually take, under every circumstance of deformity and change, seems to be very unfavourable to the opinion that they are formed only or chiefly by the impulse received from the heart, and that no change in the parenchyma has preceded their formation. This explanation also, it will at once be perceived is quite inadequate to account for the formation of veins ; the development of which, if they too are derived from the neighbouring vessels, is in the direction contrary to that in which the propelling power of the heart operates. It

\* Doellinger. Journal des Progrés &c. Vol. IX., 1828.

is nevertheless in this manner almost exclusively that Spallanzani,\* Fontana,† Rusconi‡ and many others have endeavoured to explain the developement of the several organs of the embryo. The other way in which, according to Doellinger, the new vessels are in these instances formed—and which is more conformable to the doctrines previously advocated by Harvey, Wolff and others—is by the softening of a portion of the intervacular space, in the neighbourhood of some capillary vessel, forming a column of moving corpuscles, at one time approaching, and at another receding from the primitive vessel; till at length the oscillating mass dividing itself into two small currents, one of which moves in an arterial, and the other in a venous direction, the two ends ultimately unite with this primitive vessel in the form of an arch or bow. According to Doellinger, that end of the arch which goes to the arterial portion of the neighbouring capillary vessel is first joined with it; while according to Kaltenbrunner|| and Baumgaertner§—whose observations in other respects very nearly coincide with those of Doellinger—it is with the venous portion of the capillary that the arch is first united; a circumstance which is still further in favour of the opinion that the new vessel is altogether of independent formation.

Now when an organ is to be regenerated, or a simple solution of continuity is to be repaired, processes very similar to these appear to take place in the organizable lymph, which is either the nidus of the new organ, or the medium of re-union in the parts which have been divided. Sooner or later this lymph displays obvious

\* Spallanzani. Experiments on the circulation of the blood.

† Fontana. *Über das system der Evolution*, in *Reil's Archiv. für die Physiol.* B. II. p. 480.

‡ Rusconi. *Amours des Salamandres Aquatiques, &c.*

|| Kaltenbrunner. *Journal des Progrès.* &c. 1828.

§ Baumgaertner. *Isis* for 1830.

marks of new blood vessels : it may be injected, according to Sir Everard Home, \* sometimes as early as the twenty-ninth hour, but, according to Sir Astley Cooper† and Gendrin, ‡ generally not before the tenth or twelfth day ; and the formation of these new vessels appears to be effected, partly by the extension into the fibrinous mass of loops from the neighbouring capillary vessels, and partly by the developement within this mass, of vessels independently of those of the contiguous parts. It was the opinion of Hunter || that it was in the latter way only or chiefly that the lymph became organized : and certainly, if either opinion is to be adopted, to the exclusion of the other, this seems to be the preferable one, confirmed as it has been by the most recent observations on the subject. Dr Gruithuisen of Munich § appears to have been one of the first to apply the microscope, with minuteness, to the investigation of the formation of new vessels under these circumstances ; and, according to him, these new vessels exhibit first the appearance of numerous red points, which, gradually enlarging, and acquiring either a linear or serpentine shape, throw out from their sides radiated striæ, which, uniting with other striæ proceeding from other points, constitute at length small net works. In these the blood appears to stagnate, until a communication is established between them and the capillary vessels of the neighbouring parts ; after which they constitute a part of the general circulating system. This explanation of the formation of new vessels under such circumstances, is supported also by the observations of Meckel, ¶ Béclard, \*\*

\* Sir E. Home. On Ulcers.

† Sir A. Cooper. Surgical Lectures, 2d Edition, p. 43.

‡ Gendrin. Histoire Anatomique des Inflammations, Vol. II.

|| Hunter. On Inflammation, p. 92.

§ Gruithuisen. Organozoonomic, Introduction, p. 6.

¶ Meckel. Handbuck der Pathologischen, Anat. Vol. II. p. 2, p. 30.

\*\* Béclard. Anatomie Générale, p. 331.

Lobstein,\* Hastings † and many others. Kaltēnbrunnē ‡ likewise observed that the new vessels formed in lymph, which had been deposited on the surface of a wound, as well as in the process of the natural development of the embryo, frequently displayed an appearance of isolated points or lines; although he does not conceive that this is the only way in which such vessels are formed, representing them—conformably with Doellinger's account of the double origin of new vessels in the embryo—as arising sometimes from the propulsion into the fibrinous mass of globules of blood from the contiguous capillary vessels, by a *vis à tergo*. This opinion of Kaltēnbrunnē is the mean, or rather the sum, of those entertained respectively by Gruithuisen and Gendrin, the latter of whom adopts only the latter part of this explanation. According to him,|| the formation of new vessels in lymph is preceded always by a sort of cellular arrangement in this substance, into which small red cones are projected from the neighbouring capillary vessels, and only gradually extended throughout the mass; and it is, he says, from the base of these cones being always at the greatest distance from the primitive vessel, that the opinion has arisen that the new vessels formed in lymph are, at first, altogether isolated. Upon the whole it appears fair to conclude that the organization of the lymph, deposited in the process of healing by the First Intention, is effected by the formation within it of new blood vessels, some of which certainly pre-exist in the lymph, while others are perhaps formed by the propulsion into it of blood from the neighbouring vessels; and that it is by the continuity of such new vessels with the primitive capillaries—at length in both cases equally established—

\* Lobstein. *Elém. d' Anatomie Path.*, p. 297.

† Hastings. *On Inflammation of the Mucous Membrane*. *Introd.* p. 87.

‡ Kaltēnbrunnē. *Experimenta circa statum Sanguinis et Vasorum in Inflammatione*. 1826.

|| Gendriu. *Hist. Anatom. des Inflammations*, Vol. II. p. 365.

that the opposite surfaces of recently divided parts adhere together.

With respect to the process by which mucous membranes, when brought to the surface of the body, take on the character of common integuments, and the latter, when made to line canals or cavities, assume that of mucous membranes, very little can be said so long as we continue in almost total ignorance of the nature of Absorption and Secretion, and of the other molecular actions of the living body. It is a singular circumstance that, in the process of healing by the First Intention, whatever be the character of the tissues to be united, no difference whatever can be perceived in that of the lymph which is to become the medium of this re-union, and which is ultimately to take on the character of the tissues in question; and it is not improbable that the lymph which is deposited in the nidus of even the morbid tissues, such as a Tubercle or a Scirrhus, is of precisely the same character as that which is instrumental in renewing mucous or dermoid membranes. The character of the tissue which the lymph, in any case, ultimately assumes, seems to depend upon the specific action of the vessels by which it is organized; which specific action is the result, partly of the peculiar kind of irritability, with which the capillary vessels of every individual organ of the body appear to be endowed, and partly by the peculiar kind of stimuli, to which these capillary vessels are every where exposed: and if it is these causes which determine the character of any tissue as formed *de novo*, it must be to similar causes that we should look for an explanation of the changes in character which any tissue is liable subsequently to undergo. So long as the Irritability of any two secreting vessels, and the stimuli by which this Irritability is excited are the same, the secretions from each, it must be presumed, will be identical; but if either of these conditions be different, the secreted matters will differ in proportion. It is in this way alone that we can explain why the capillary vessels of the se-

creting surfaces of the Uterus, the Mammæ, the Kidneys and so on, acting upon precisely the same kind of blood, in their natural state, should form from it, respectively perfectly distinctive fluids; and why those of the mucous, dermoid, serous and other tissues should, in their natural state, deposit each its own peculiar tissue, and no other. But it is abundantly well known that, under peculiar circumstances, each of the former sets of vessels is capable of secreting fluids not naturally its own, but more or less allied to the natural secretions of others. Thus, numerous cases are on record in which the menstrual fluid, or something very like it, has been discharged from the nostrils, eyes, ears, mouth, lungs, stomach, anus, mammæ, navel, skin and other organs; others, in which the milk, or a similar fluid, has been passed from the eyes, mouth, urinary bladder, vagina and navel; and others, in which the urine, or at least many of its characteristic principles, have been voided by the nostrils, eyes, ears, stomach, mammæ, navel and skin.\* Now the continued renewal of the particles of each of the solid tissues from the blood, in proportion as they are removed by absorption, is by a process of secretion precisely similar to that by which the several fluids are deposited: and if vessels, naturally engaged in secreting for example mucus alone, can, under peculiar circumstances secrete the menstrual fluid, milk or urine, it ought not to surprize us that vessels, the natural office of which is to deposit particles of mucous membranes, should in certain cases deposit particles of common integument, or vice versâ; particularly when we consider that there is infinitely less dissimilarity in the structure of these two tissues, than in

\* Schenck. Bartholin. Schulrig. Mollenbroech. Percival. Edinb. Med. Commentaries.

Halford. Med. Trans., 1820.

Coindet. Inaug. Dissert., 1820.

Dunas and Prevost. Annales de Chemie, 1823.

Mayer. Zeitschrift fur Phys., 1827.

Arnold. American Journ. of Med. 1827, &c. &c.

the character of many of the fluids which are occasionally vicarious of each other. If then the mucous surface of a portion of lip, reflected, as in the operation introduced by Mr Liston, for forming a new *Columna Nasi*, or a portion of the lining membrane of the mouth, drawn from this cavity and laid over the cheek, as in an operation of Dieffenbach, for relieving a contracted mouth, soon acquires all the properties of the dermoid tissue on the one hand; and if, on the other, the dermoid surface of the lip, as in the operation for forming the *Columna*, or of a strip of the integuments of the perineum, as in Mr Earle's introduced method of removing a gap in the urethra, or lastly of the prepuce, reflected inwards and kept thus in contact with the glans penis, as in another operation of Dieffenbach, sooner or later degenerates into a perfect mucous membrane; it is not calculated, I conceive, to excite surprise, or more than we may reasonably attribute to the very different circumstances in which the respective tissues are now placed, and the very different stimuli to which their capillary vessels are now exposed. In proportion as the particles of the original tissue are absorbed, particles of a tissue somewhat different will be deposited; and what was originally a thin, semi-transparent, spongy membrane, with mucous follicles on one surface and a viscid fluid on the other, will gradually pass into a thick, opaque, dense substance, with sebaceous follicles below and cuticle above, or vice versâ. It is by this admirable provision that Nature has enabled us to meet so many emergencies, against which the art of man would otherwise have contended in vain; by placing within each organ a power, not only of repairing itself *en masse*, when divided or otherwise injured, but of adapting itself, particle by particle, to the innumerable varieties or circumstances to which it is liable to be exposed, and under which, if destitute of this power, it must necessarily have been speedily destroyed.

The process by which the exposed raw surfaces of various tissues throw up granulations, and in this way



acquire the thickness and solidity necessary to the success of many of the operations already described, is probably strictly analogous to that by which recently divided organs, if kept in approximation, adhere together. This process is usually called healing by the Second Intention, to distinguish it from the one last mentioned; and it has been the opinion of some Physiologists, and among the rest of Sir E. Home,\* that the pus, deposited in this process, is in place of the coagulable lymph laid down in the other, and that it becomes organized, or converted into granulations, by the formation within it—owing to the supposed evolution of Carbonic Acid at the instant of its coagulation—of a net work of minute canals, into which the blood shoots from the neighbouring vessels. More recent observations, however, are decidedly hostile to this hypothesis; and render it more than probable that the inspissation and solidification of organs by granulations is merely a variety of that process by which they are either altogether regenerated when removed, or re-united after division, and that the medium is in both cases coagulable lymph, deposited, in the granulating process, in successive layers, and organized from its base, the surface of the new organ becoming at length covered with an appropriate integument, in conformity to that salutary provision of Nature to which I recently alluded.

J. S. B.

DUMFRIES, 1833.

\* Sir E. Home. Croonian Lectures in Phil. Trans., 1818 and 1819.

## CHAPTER II.\*

### OBSERVATIONS ON THE RESTORATION OF THE NOSE.

GREAT as has been the progress of modern surgery, and numerous as are the disorders now easily removed, which a few years ago were deemed incurable; still the art of emending the appearance of the human face, disfigured by accident or disease, is capable of much improvement. It was but lately that Von Gräfe introduced into Germany the old Italian rhinoplastic operation of Tagliacozzi, by which a new nose is formed from the arm; † and about the same time Carpue of London published the history of two cases in which he had restored the nose from the skin of the forehead—an operation derived by him from the practice of the native surgeons of the East Indies. ‡

The examples of Von Gräfe and Carpue were soon followed by German, English, French and Russian surgeons, whose cases and observations are to be found in the various periodical publications of the time. Several operations appear to have succeeded, and many an individual was restored to that society from which his

\* This Chapter contains that part of Dr Dieffenbach's first volume, published at Berlin, in 1829, which relates to the restoration of the nose when mutilated or destroyed.

† Introduction, p. 19.

‡ Ibid. p. p. 27 and 32.

hideously disfigured countenance had excluded him; much greater, however, is the number of those, whose looks were but little improved by their newly formed noses, while many were more disfigured than before the operation, and became still more the objects of curiosity and disgust. It was on this account, that, the celebrated Dr Klein objected to the operation, asserting that a nose made of boxwood, when painted and varnished, appeared far more natural than the misshapen one of flesh. Klein has been justly censured; his opinion was too general, and liable to the same objections, as is exaggeration in every thing else. The failure of unskilful persons does not warrant us in banishing the Rhinoplastic operation from our code of Surgery; on the contrary, the difficulty of the undertaking should excite us to endeavour to improve the operation, so that it may be performed with the greater certainty of success; this is still more necessary, since many most satisfactory cases prove the possibility of restoring the nose when mutilated or destroyed. It is thus that the great progress of Modern Surgery will become the more conspicuous, when we compare it with a period, and that, too, not very remote, when the most rude and mechanical proceedings were in vogue, and Surgeons treated with contempt and disbelief the accounts of the operations of Tagliacozzi and his pupils.

It is by no means my intention to lay before the reader a treatise on Rhinoplastics, or to describe the various methods of operating in the different countries in which the operation has been performed. It is more my desire to describe a new mode of operating; and above all, to add my experience to the general stock of knowledge on this subject; but in an especial manner to lay down as an axiom, that, in all operations on the face, particularly where parts are to be formed by transplantation, it is of equal importance with the restoration of the lost part, to preserve the existing one; and, that, Surgeons

are not warranted in causing a considerable deformity in one place, in order to cover a defect in another.

Anatomy points out with the greatest precision, and accurately defines the general principles, upon which the more common operations are to be performed; but that branch of Surgery now under consideration depends more for its success upon a knowledge of the plastic arts; and the Surgeon who desires to distinguish himself by the restoration of mutilated parts of the human face, will do well if he learns to model in clay or wax the different features of it—a task which he will find not very easy to perform. This being the case, how much more difficult must it be to form parts of the face of a material subjected to change, by a living action within itself, and which, during the healing process, shrinks in one place and grows luxuriantly in another; here again is the skill of the artist required to remedy any defect that may occur, and the Surgeon becomes in some degree a Sculptor, whose duty it is to regulate the form of the new organ, both individually, and in relation to the neighbouring parts. In all cases of a mutilated face, it is the Rhinoplastic art which teaches us to remedy the evil; nay, it points out the very lines the knife must draw upon the skin; but even this done a most important part—directions for which, cannot be laid down by rule—still remains to be performed. In short, I am of opinion that a Surgeon capable of forming a nose of inorganic matter with the ability of the Sculptor, is the better able to produce one of skin. Even in the minor operations of the face this is of importance. We see persons who in infancy had been operated on for hare lip, who—although the directions given in Surgical works had been most religiously observed—have still a very horrible appearance; the same may be said of operations upon the eyelids, and of that for cancer of the lips, especially when of considerable extent and affecting the corners of the mouth. In these

cases Surgery merely shews us how to draw the knife through the sound parts and to remove all morbid matter; but, how disfigured will the face appear when healed, if the operator has been unassisted by his own individual judgment, and omitted to cut out a considerable portion of the sound parts of the cheeks, or to transplant portions of the under to the upper lip, or vice versâ.

When the nose or any other portion of the face is to be restored, I would again caution the practitioner against injuring, more than is really necessary, any existing or well formed parts that may be remaining. According to the Indian method, a very essential part of the human face—the forehead, is greatly disfigured, generally appearing as if it were branded; while, on the other hand, greater facility of execution and greater probability of success give it a decided preference over the more troublesome method of forming the nose from the arm—an operation difficult and unpleasant in its performance, both to the Surgeon and the patient. But it is to be remembered that the former operation is only to be performed when the bones of the nose are altogether wanting; while the latter is to be practised when the tip or point of the nose only is to be restored, the bones remaining perfect and uninjured.\* The latter sort of noses generally look well, while the Indian nose, though tolerably respectable after the operation, in a short time assumes a very unnatural appearance, for the sides attached to the cheeks become thin, and converge towards the septum, while the dorsum of it enlarges and thickens

\* Whether the nasal bones be deficient or not, the new nose must never, for reasons already adduced, be formed from the arm. Although Dieffenbach has attempted it, I doubt if any British surgeon would follow his example; indeed the author himself appears to have arrived at the same conclusion, for in the second volume of his work, published a year subsequent to the first, he relates cases in which the point of the nose only being lost, he restored it from the forehead. See Chapter V., Cases I. and II.—TRANSLATOR.

so much, that a strong wind might move the nose.\* Noses formed from the arm have a tendency to close, soon growing together at their nostrils; their alæ also are usually too thick, which renders it imperative on the part of the operator to spare whatever piece of the old alæ, however small, may be remaining, to be used for the new nose. There are persons indeed in whom the organ is entirely deficient; in such cases an attempt should be made to form the sides or alæ of the nose from the skin of the cheek, and the septum and tip from the upper lip. Here pins are required, placed through the sides and bottom of the new nose to give due support to it, and they are to be kept in for some time after the wounds have healed, and until the parts are firmly consolidated. Should the tip of the nose and one of its alæ be deficient, or the latter, in consequence of herpetic ulceration be destroyed as far up as the bones, the rest remaining sound, I think the best way is not to add a front piece, but to pare the edges and introduce a longitudinal piece obtained from the cheek of the side on which the defect is, by dividing the skin from the nasal bone of that side, obliquely downwards on a line with the point of the nose, then transversely; and dissecting this from the subjacent parts applying it over the gap, remembering to leave undivided a narrow neck or isthmus at the upper part of the flap to preserve its circulation until union has taken place between it and the parts to which it is attached. The lips of the wound in the cheek are to be approximated to this and healed.†

\* As far as I can learn, such an unfortunate event has never taken place after any British operation that has yet been performed. In the cases that have come under my own immediate cognizance, the union between the new nose and cheek has always continued firm and very considerable.—TRANSLATOR.

† What is here said about the checks, is opposed by the preceding observations of never making the new nose at the expense of disfiguring another part of the face, which will undoubtedly be the case if the alæ are made from the checks. The practice appears uncalled-for and highly objectionable.—TRANSLATOR.

The description is far more complicated than the operation itself; but the idea on which it is founded is the necessity of sparing any remnants of the *alæ* that may be remaining. Meanwhile these are hints to be applied by the Surgeon and subject to his approval.

We now come to the more immediate object of this work, namely, the description of a new method of restoring the nose. This method being altogether a novel one, suggested by me, and successful in my hands, may have induced me to overvalue it; but still I will venture to affirm that it will considerably limit, if not altogether supersede, the more common operations. It has already been observed that the rhinoplastic operation is to be had recourse to, when the patient from accident or disease has lost his nose, and where little or no vestige of it remains. These cases, however, are but rare, and when the bones, cartilage and other parts of the nose are altogether destroyed, presenting a frightful hole or cavity several inches in circumference, down which we look, as down a crater, I hardly believe any surgeon has attempted the operation;\* the patient's constitution is generally so bad as to hold out but little chance of union taking place, and the sides of the cheek on which the new nose is to be placed, are for the most part so callous, thin and red as to give little hope of receiving, or sufficiently nourishing the layer from the forehead. The

\* In Britain, under these circumstances only it is that the operation, as yet, has been attempted. Little progress, however, has been made. In Scotland I know of no surgeons who have performed it but Professor Lizars and Mr Liston of Edinburgh, and myself; the results have gone in a great measure to prove the truth of Dr Dieffenbach's maxim, that "surgeons are not warranted in causing a considerable deformity in one place, in order to cover a defect in another." The best specimen that has as yet been produced, is one of Professor Lizars', which, through his kindness, I am permitted now to publish. To this I add one of my own, in which union took place only on one side, leaving a frightful scar on the forehead, and a very extraordinary looking nose. Plates accompany both cases.—*See Appendix.*—TRANSLATOR.

persons who principally undergo the operation, are those in whom from disease the nasal bones have come away, the cartilage shrunk and the whole nose deeply sunk into the face. The profile of such persons must be familiar to every reader, and the operator hitherto attempted to remedy the defect, by casting with a flap from the forehead, a sort of roof over the fallen nose; or if the tip alone was sunk, he endeavoured to form a new one, leaving the old and shrivelled one untouched.

The methods that have been adopted for restoring the nose when altogether lost, and the means that have been had recourse to for improving the appearance of this organ when mutilated by accident or disease, must ever be regarded as most important and ingenious; and when we consider the relief that they have afforded to the unhappy sufferer labouring under such an affliction—at the sight of whom all men turn with disgust and abhorrence, and at whose presence children cry and dogs bark—we cannot too highly estimate them; yet, the operation appeared to me to cause so much pain and uneasiness to the patient; to be so uncertain in its results, and its product generally so ill-looking and unnatural, that I was long occupied with the idea whether it were not possible to raise up and reconstruct a sunken nose. I therefore carefully examined persons in whom the destruction of the nasal bones, the cartilages, the septum and turbinated bones had caused the external soft parts of the nose to sink deep into the cavity of the nares. The small, flat and shining surface of the sunken nose, although not unfrequently somewhat shrivelled and contracted, generally exhibits a great degree of firmness and solidity, probably owing to chronic inflammation and the suppuration which have taken place on its inner surface. I selected persons disfigured in this way—and they are by far the greater number—and proceeded with my experiments.



## OPERATION.

THE method I follow in operating for restoring depressed noses, is unquestionably the simplest, the most natural and the easiest of accomplishment of any yet proposed. It simply consists in dividing into portions the remains of the old and now sunken organ, raising them from the cavity in which they lie, securing them by appropriate fastenings and maintaining them during the process of healing, by proper means of support, in the position they formerly occupied. To explain this more fully I shall enter into a detailed description of the operation. The patient being seated on a chair, behind which an assistant holds the head firmly against his breast, the operator thrusts a small pointed scapel into the left side of the cavity before the sunken point of the nose, and by an incision proceeding obliquely upwards, cuts through the soft parts as far as the nasal process of the frontal bone. A similar incision is then made on the right side. The strip of integuments between these incisions, which consists of the point and dorsum of the old nose, is twice as broad below as above, where it is attached to the skin of the forehead. At the lower end it is connected with the upper lip only by the shrunken cutaneous portion of the septum. If this be destroyed, and in order to gain room, the flap may at once be raised and reflected. The inverted tip of the nose which forms the extreme point of the flap is next to be pressed outwards, and the shortened septum is to be elongated by an incision, made on each side of it, in the upper lip.

The next step is the formation of the sides of the nose. The first incision is most conveniently made on the right side of the face; the knife is inserted down to the bone, a few lines below the termination of the incision by which the dorsum of the nose was raised; it is then to be carried slowly through the soft parts, obliquely downwards

on a line where the base of the nose passes into the integuments of the cheek—a small addition from the latter being advantageous. A similar incision is then to be made on the left side.

Lastly, two semi-circular incisions are to be made through the soft parts, along the natural—though in the present instance entirely obliterated—place of insertion of the *alæ nasi*. Both the left and right of these incisions pass round the lower part of the sunken *alæ*, outwards and upwards meeting the incisions at the sides of the nose. The lower edges of these flaps are now partially free; they are to be laid hold of with the forceps and cautiously separated from the bones, and then with their *alæ*, situated at their lower part, are to be drawn out of the cavity and reflected upwards. The flaps extend to the skin of the forehead, as they approach which they become narrower.

The subsequent step of the operation, and a very necessary one, is the separation of the margins of the incisions in the integuments of the cheeks, bordering on the large cavity in the face, to the distance of a fourth or a third of an inch. It is by means of this separation that a firm attachment is procured for the skin, forming the sides of the new nose, with the facial bones at its base, and consequently the nose is prevented from again sinking down by a sort of slipping outwards of its sides, especially at the upper portion. This mutual approximation of the sides, which will be again spoken of, is principally accomplished by means of two long needles, which are passed through the edges of the integuments of the face, under the base of the nose, and fixed, in a way to be afterwards described, to a long splint of stiff leather placed on each side of the nose, so as to squeeze it outwards by pressing on its base, and thus to push it prominently forward.

Now begins the re-construction of the nose. If the Surgeon were to bring the flaps in contact with the surface of the incised wounds, the nose certainly would not

again sink, but it would be very flat. Their edges must therefore be cut in such a manner as to promote the upright position of the nose. For this purpose the inner part of the two edges of the dorsal flap is to be removed with a pair of sharp scissars, without comprehending in the incision any of the cuticle of its outer surface; so that the long thin strip thus cut away is of a triangular form. The reason for this is obvious. The dorsum of the nose acquires in consequence the properties of the key-stone of an arch; that is, it is between and rests on the edges of the external flaps. In order to prevent the strong inclination of the lateral flaps and *alæ nasi* inwards, and to raise them up like walls, their external edges too must be cut,—not, however, on the inner angle of the edge, as in the instance of the dorsal flap,—but on the outer or epidermal angle, from which about a straw's breadth is to be removed. On the straight lateral edges this is done with a pair of straight scissars, on the edges of the *alæ* with a pair of scissars curved on their surface.

We now proceed to the most agreeable part of the operation—the union of the flaps with one another, and with the skin of the cheeks. In the first place, the edges of the dorsal flap, after the careful removal of the blood, are united with the upper or inner edges of the lateral flaps. The best mode of accomplishing this is by the twisted suture. Three needles are sufficient for each of the upper seams; and they must be placed at proper distances from each other; the two lowest should be at the sides of the tip of the nose. The union is more complete when another needle is introduced into the outermost edge of each *ala*. Finally, a ligature is to be passed through the edges of that part of the upper lip from which the septum was taken. This ligature therefore lies behind the septum; and while it brings the edges of the breach in the lip closely together, it contributes to push the strip of integuments forward, and to prevent it from sinking back into its former cavity. All the needles,

after being properly furnished with ligatures, should be cut off close to the thread. If the columna is altogether wanting, it is to be formed at a later period, after the parts are fully healed, by cutting a small strip of skin out of the upper lip, and bringing it in contact with the tip of the nose, where a raw surface is previously to be made for its reception.\*

One can scarcely imagine what firmness the nose has now acquired, although it still remains unattached at its lower part. The union of the nose with each of the basement edges of the cheek is effected by four simple knotted sutures, which are introduced by fine semi-circular sharp needles. The two uppermost serve to fasten the lateral surfaces; the two lower to fix the alæ to the upper lip. The last and only remaining painful part of the operation which the patient has to undergo, is the insertion of two long needles under the nose, and through the detached edges of the integuments of the cheek, as has already been alluded to. The best method of effecting this, and the most convenient to the operator, is to thrust them from the left towards the right side; the distance from the point at which the pin enters to that at which it comes out, is upon an average, about one inch. Before they are introduced a strip of stiff

\* This method of renewing the columna nasi, when it alone is deficient, giving rise to a sinking of the tip and alæ of the nostrils, and not unfrequently to an exposure of the cavity, almost as hideous as that which results from the loss of the whole nose, was had recourse to for the first time in Britain in 1830, by Mr Liston. It is remarkable, in such cases, that the mucous surface of the reflected portion of the lip very soon acquires all the properties of the dermoid tissue; while the dermoid surface degenerates into a kind of mucous membrane; the hairs even, previously constituting, if the subject be an adult male, a part of the beard, acquiring the character of those natural to the interior of the nostrils. Similar attempts to form a new columna had previously been made by Dupuytren of Paris, and Gersoul of Lyons; but both failed, probably from their having employed only the integuments of the lip, and not the whole substance of that organ.—See *Introduction*, p. 44.—TRANSLATOR.

leather, from a third to half an inch in breadth, and from one and a half to two inches long, is laid on each side of the nose, forming two splints which press the sides of the nose together, keeping them in their proper situation. Each of these compressing pieces of leather has two small holes through which the needles are to be passed, on the left side *before*, but on the right side *after*, they have transfixed the nose. The heads of the needles on the left side prevent them from slipping through the leather; which is also prevented on the right side and at the base of the nose—which at the same time is squeezed inwards to the requisite degree—by twisting the projecting points of the needles spirally with a pair of pliers.

In conclusion, the nose, especially its cavities, must be carefully cleaned by injections of tepid water; and quills wrapped round with oiled charpie, are to be introduced into the nostrils.

It is surely unnecessary to enter more fully into the details of this operation; should the surgeon find my description not sufficiently circumstantial, and be unable to supply any thing, from his own knowledge of general principles, that he may find wanting, he had better altogether abstain from operating.

#### AFTER TREATMENT.

THIS is exceedingly simple, and does not differ in its general characters from the ordinary and generally received principles of surgery. Cold applications are to be avoided, as they may be the means of checking the circulation in the newly formed parts. As it is, for six or eight hours after the operation, the nose is pale and cold, nor is it till re-action has taken place and circulation in some degree established, that the skin looks bright and smooth and the parts swell. Immediately

after the operation an embrocation of warm wine and water is advisable, which is to be continued till the commencement of the inflammatory process, when the Arquebusade lotion of Theden, much diluted, becomes necessary. At a later period, when suppuration has taken place, this application must be exchanged for a solution of the Acetate of Lead. During the night the nose should be covered with a pledget of fine linen dipped in oil. These means will generally carry us on to the seventh or eighth day after the operation. The removal of the pins and sutures is not to be delayed too long. On the third day some of the needles and lateral ligatures may be drawn out, those only being left which have most to hold. More of them may be withdrawn on the fourth, and the remainder on the fifth day. On the third day a cautious attempt to withdraw the quills from the nostrils is to be made, which are then to be gently cleaned by injections, and other quills wrapped in oiled Lint inserted, which are to be changed daily. Where the septum is destroyed, of course, only one large quill is used. The two long needles thrust through the base of the nose should not be removed until the eighth day, and in their stead, two others should be introduced, at two different places, and left for eight days more; this precaution may, with propriety, be repeated even a third time. The splints of course, are each time to be re-applied, as without them the pins would be totally incapable of effecting the purpose for which they were intended. Their extraction causes no pain, if care be taken to cut away the turned points on the right side of the nose, before they are removed. In order to promote the thickening of the nose, as soon as the inflammation has entirely subsided, the inner surface of the nostrils should be touched daily with caustic; and afterwards a luxuriant granulation is to be encouraged by means of red precipitate laid on with a hair pencil. Tents moistened with a solution of sugar of lead will be then found greatly to promote the internal cicatrization.

These few remarks are all I intend to offer. Several cases, however, illustrative of the principles developed in the preceding narrative, and much valuable and more detailed information concerning the after treatment of the operation, may be found in Von Gräfe's work on Rhinoplastics.

#### CASE I.

##### *The reparation of a Nose mutilated by disease.*

Miss K. of Schneeberg, aged 18, came to Berlin, on account of a considerable deformity of the nose. When a child a severe scrofulous affection had deprived her of the soft palate, part of its bony attachment and the greater portion of the right nasal bone. The consequence of these losses, was, that the right side of the nose, and particularly its ala had fallen into the nasal cavity, and become invisible unless when the head was bent backwards. The ala was much diminished in size and shrivelled in appearance, the natural consequences of the suppuration on its inner surface, and the compressed state in which for so many years it had been permitted to remain. The unfortunate girl was painfully sensible of her situation; she had lived solitary and retired; she had the greatest aversion to being seen and kept her face concealed beneath the folds of a thick veil; she scarcely ventured to speak, ashamed of the discord of her voice. On seeing her every surgeon must have been forcibly impressed with the opinion, that this was a case well adapted for attempting the reparation of the nose from the arm. Several eminent individuals had given her this advice; but the tediousness of the operation and the fear that it might—like other cases of which she had heard—terminate unsuccessfully, induced her to withhold her consent, and to endeavour to become resigned to the miseries of her situation. She at length

consulted me, and after attentively considering what parts of the original nose remained and what were wanting, I conceived that by raising the ala from its cavity, and enlarging it by additions from the neighbouring parts, I might give such a form to the nose, as would obviate any great disfiguration of the countenance. As already mentioned, the right ala had sunk considerably into the nasal cavity, it was also drawn upwards and inwards; had I now merely separated it by a semicircular incision, from the adjacent parts, from its shrivelled and contracted condition, it would not only have been much smaller but far higher up the face than the opposite and uninjured one; it was therefore necessary to enlarge it, by including a portion of the cheek in the incision. This was effected in the following manner. I introduced and inserted deeply into the right nostril a sharp pointed bistory, which I then drew in a semi-circular direction through the upper part of the lip and skin of the cheek, in such a direction as that the incision answered to the place of insertion, into the cheek, of the uninjured ala on the left side. The incision was then continued upwards in a strongly curved direction to the upper part of the nose. The sunken ala and flap thus formed were now raised by a pair of forceps from their cavity, and to effect a more exact position of the parts when re-united, a triangular strip of skin was cut from its edges, with a pair of scissars. Properly speaking, it was not from the ala itself this triangular strip was removed, but from the edges of the portion of the integument that was borrowed, to increase its size, from the neighbouring parts. The soft parts were then separated from the cheek bone, to which the flap and enlarged ala were fixed by pins in the way already described. Two pins—which as soon as applied were overlapped with soft thread—supported the side of the nose, while three sutures fastened the lower and forepart of the ala to the upper lip and point of the nose. The portion now acquired was highly satisfactory, but I raised the ala still more by introducing



into the nostril a quill previously wrapped in lint and dipped in oil. As there was no reason to anticipate any excessive degree of inflammation or a want of vitality in the parts, I used no application, and choose rather to leave the nose quite uncovered. The next day I found the parts so far united as to hold out a fair prospect of a perfect recovery. As some inflammation presented itself, I prescribed a lotion of the acetate of lead, a strict antiphlogistic regimen and an aperient mixture. I deemed this the more necessary as the patient was in a highly excited state of mind; towards night she became very feverish. On the third day, the bowels having been freely moved, the poor girl, though still weak felt considerably better, the nose was less inflamed and a very firm union had taken place; I now removed the two pins. I have already observed that the right ala had been enlarged by an addition from the neighbouring parts; it had even been made larger than the uninjured one on the opposite side, as I supposed it would shrink considerably during the process of healing. In order to assist its exterior and lower edges in their inclination to become everted, and consequently to render the peculiar furrow behind the ala more marked and conspicuous, I commenced on the fourth day to apply caustic to them. On the same day I withdrew two sutures, and on the fifth removed the last one. The daily application of lunar caustic was attended with the happiest effect, and in a few weeks the nostril was of the same size as the uninjured one. As long as any portion of the inside of the nose remained unhealed a quill wrapped in oiled lint was kept in the nostril. The restoration of the velum palate was effected at a later period.

## CASE II.

*Reparation of a Nose and Mouth mutilated by a wound.*

The Baron von W. in a duel with small swords, received a wound on his face, which deprived him of the tip of his nose, a small portion of the right ala about the size of a pea, part of the septum and a flap of about an inch square from the surface of the middle of the upper lip. Although he had been carefully and skilfully treated at the place where he resided, a very considerable deformity had remained. The appearance of this young man, when I saw him, one year after the accident, was as follows: the upper lip, especially its middle part, was curved upwards; the triangular space between it and the nose was occupied by a dark hard and unequal cicatrix, while the forepart of the nose was bent downwards, its point entirely lost, and replaced by a red and indurated scar; from this there ran obliquely downwards, a prominent cicatrized ridge, which after passing along the outer side of the left nostril, joined the elevated indurations on the upper lip. I could not distinguish, nor ascertain from the patient whether this was the remains of the skinny septum detached from the cartilaginous partition of the nose, or a cicatrized hand formed during the granulating process.

The wound which had caused this disfiguration, must have been inflicted at a moment when the Baron, with his head bent backwards, presented the right side of his face to his opponent; thus the nature of the wound is accounted for; the cut had less affected the ridge of the nose, than the lower part of its point, and the septum and middle portion of the lip; it appeared as if these parts had been peeled off.

When first consulted I was somewhat puzzled with the complicated appearance the wounds presented; and

did not feel quite clear as to the mode of remedying the defects. There were certainly grounds for operating according to the method that had been suggested and recommended by other surgeons—namely, to divide the great cicatrix which caused the contraction and curvature of the lip, and then to form the new septum and tip of the nose by a triangular portion from the same lip. My patient hoped that I, too, would propose this operation, but had it been performed I do not think it would have led to a favourable result ; as, in all probability, the triangular space between the nose and lip would have healed by granulation, and the lip been again drawn upwards. In order to avoid such a termination the following operation was had recourse to.

I deemed it necessary to remove entirely the middle and indurated portion of the upper lip ; this was done as in the operation for cancer, commencing at the left nostril downwards through the lip, and along the margin of the right side of the thick prominent strip over the great cicatrix. The second incision was commenced from the right nostril through the sound part of the lip, and continued downwards along the opposite side of the cicatrix. Thus it will be seen that between the two lines of incision lay the whole indurated middle portion of the lip, which a few strokes of the knife, close under the nose, separated from the gum and alveolar process of the jaw. I spared the small prominent cicatrized strip, above mentioned, which ran to the left, it being well adapted for forming a very perfect columna, more especially as its sides were already covered with skin. This I now loosened from its place, and applying its lower side to the wounded cartilaginous septum, retained it there by a pin passed through the edges of the small wound in the right ala. I dare scarcely hope, that with even the greatest attention, my readers have been able to follow me, but I find it impossible to describe the details of this operation with greater perspicuity.

There still remained a wide gap in the upper lip, which, in consequence of the retraction of the wounds, appeared to be reduced to a small remnant on each side. When the bleeding, which was rather considerable, had ceased, I proceeded to close this gap. In the first place, in order to bring the wounds as closely together as possible, I detached to some extent, the two remaining sides of the lip from the alveolar process; without this precaution nothing but the edges of the wounds could have been united. Four pins—applied in the usual manner—united the wounds: one immediately under the nose, one on the edge of the red margin of the lip, and the two others between them. The operation was concluded by uniting the lower extremity of the skinny portion preserved for the septum, to the upper end of the wound in the lip.

Drs Barez, Bönh, Ippel, Heyfelder from Trier and several other persons who witnessed the operation were delighted with its result. The countenance of the Baron was altered in a remarkable degree; all deformity had disappeared, and when he beheld his face in a mirror he scarcely knew it.

Although but little affected by this painful operation, the patient was put to bed, a rigid diet enjoined, lemonade given him to drink, and a careful nurse directed to keep the nose day and night covered with linen dipped in iced water.\* The next day the swelling was but slight and the fever trifling; medicine to relieve the bowels was prescribed. In the evening, as much pain and inflammation had come on, twenty-four leeches were applied to the cheeks, and the patient passed a quiet night. The same number of leeches were re-applied on the third day; the swelling and inflammation had now considerably decreased. The wounds readily united by the First Intention; on the fourth day all the pins and sutures were removed, and small strips of stick-

\* I apprehend this is simply cold water; iced water so applied would probably have produced gangrene.—TRANSLATOR.

ing plaster applied to prevent any re-opening of the wounds. In truth, I had not calculated upon being able to preserve the strip of skin which formed the columna, on account of its slender connection with the point of the nose, but I was rejoiced to find it had firmly united with the edge—previously made raw—of the cartilaginous septum. Small suppurating points appeared at its posterior extremity, where it was united to the lip, and also on its side, where it assisted to form the right nostril; by the application of caustic however, these soon healed. A few weeks after the operation the Baron left Berlin completely cured and free from deformity, having previously waited on Dr Barez and others.

I shortly detailed this case in the eighth volume of Hecker's Annals.

### CASE III.

#### *Removal of a large Cancer from the Nasal Ridge, and re-construction of the Nose.*

Madame S. had been for many years afflicted with cancer of the nose. It first appeared at that spot on the ridge where the cartilaginous septum meets the osseous one; at the time I saw her it extended with ragged edges to nearly the point, and for about the third part of an inch down both sides of the nose. Its whole extent, exclusive of a dark red coloured or purplish margin, was as large as a shilling, though somewhat longer. The complaint had existed for several years, and was gradually becoming worse. It commenced by a small and soft warty excrescence, which had been treated by all kinds of escharotics, with, however, so little avail, that when I suggested an operation, it was at once agreed to.

Had I confined myself merely to the removal of the disease, a considerable disfiguration of the face would

have been the consequence, and, in profile, the nose would have looked as if a large piece had been cut out of its ridge. To avoid this, it appeared to me necessary to re-construct the nose, and fortunately it was both large and prominent. I inserted the knife close to the nasal process of the frontal bone, and continued the incision on both sides, obliquely downwards, on each side of the cancerous mass, and as far as the fore part of each ala, including the diseased portion and the whole of the ridge. The skin immediately above the cancer was now cut across, and the cartilage of the nose divided in a direction corresponding to the external wounds. The whole ridge of the nose below the bones was now free with the exception of its attachment to the septum, which was separated with a pair of scissars, and the mass removed. When bleeding had ceased, I introduced seven of the finest pins in the usual manner, between the nasal bones and the point, bringing the wounds well together; the wounded edges of the ala corresponded exactly, and when approximated and secured, formed a very handsome point, to which the detached end of the septum was united by a suture.

Cold applications to the nose and face were continued for three days and nights; the patient in the meantime slept well and continued free from fever. On the third and fourth days the pins were removed, and adhesive plaster substituted. Suppuration took place only at the line of union between the columna and point of the nose; the application of lunar caustic, however, healed the ulcer, and in three weeks the patient had quite recovered.

## CASE IV.

*Restoration of an entire Nose.*

THE daughter of a shoe-maker, twelve years of age, had been long afflicted with Scrofula, and in consequence of an inveterate ulcer on the nose had completely lost that organ. The girls' brother from the same disease had lost both his eyes, and the younger children were all more or less affected. The appearance of the girl—which is represented in Plate I.—was indeed most disgusting; she had lost the ossa nasi, the nasal processes of the ethmoid bone and the cartilages, so that the soft parts had sunk down, and instead of a prominent nose, there was as it were a deep pit, with a ridge at the bottom of it, on which a slight furrow or sulcus, was visible. Her countenance was most repulsive—it was more like that of a death's head than the face of a living person. She had been for three years in a state of good health, and I did not, therefore, hesitate to undertake the operation: in performing it, I exactly followed the method I have already laid down in page 55; this was the first case presenting itself, that gave me an opportunity of putting my plans into execution. I performed the operation with the assistance of my friends Drs Baum, Klein and Orthmann.

The child being properly seated, I commenced, as already described, by two cuts, one on each side of the whole sunken ridge of the nose, from its point upwards. The strip of skin between these incisions was three times as broad at its lower end where it was connected with the upper lip by the thickened and shortened columna, than at its upper part where it joined the forehead. The cheeks were next cut through, down to the bones, parallel to, and near the sides of the nose; by semi-circular incisions, continuations of the side wounds, by which

the two alæ were separated from the lip. The three strips of skin which had been thus formed, considerably broader below than above, as represented in Plate II. Figure 2, were now easily raised from the cavity where they had so long been concealed; and the tip of the nose, which had been turned inwards, could literally be unfolded.

Every one expressed their astonishment; for, bloody as were the flaps, and loosely as they hung together, the unearthly appearance of the face had disappeared, and it had become more human. A triangular slip was now cut from the *inner* margin of the middle flap, while from the alæ and outer flaps a like slip was removed from the *outer* edges; this plan has been already described at page 57, and greatly assists in securing an upright position for the nose. The flaps appeared of so firm a texture that I had no doubt of success and after a few seconds commenced to re-unite them. The middle flap was united to those of the side by six needles applied as in hare lip, and the side flaps and alæ, were approximated to the cheeks by means of eight sutures easily applied by a fine and curved needle. I must however observe, that the cheek skin had been previously separated, for a few lines, from the bones, for reasons which have been already assigned. The nose stood up exactly like a natural one, and it appeared so solid that no fear was entertained of it again sinking. The sutures partly gave it support, but more particularly the peculiar manner—to which I would especially call attention—in which the edges of wounds had been cut. As the old *columna nasi* appeared too short, it was elongated by means of two slight incisions in the upper lip. Two small quills, previously covered with oiled lint, were introduced into the nostrils. For the purpose of bringing the sides of the cheeks nearer to each other, and thereby pushing out the nose and making it stand more prominently from the face, the two compressing splints of leather were applied; two small holes being previously, as before mention-



ed, made in them to receive the long pins passed under the nose and through the detached edges of the integuments of the cheeks. Immediately after the operation the nose had a pale appearance and felt very cold; I therefore ordered a mixture of tepid wine and water, as an embrocation. As early as the evening of the same day the vital turgor returned with redness and warmth, and the external appearance of the nose was much improved. Next morning the redness had increased and was attended with some swelling. All the wounds lay in close contact, and justified the strongest anticipations of ultimate success. The patient's general state, however, was not so good as might have been wished. She had passed a restless night, and had suffered much from stitches in the chest, oppressed breathing, cough and fever. Twelve leeches and the antiphlogistic regimen were accordingly prescribed, and, in the evening the pulmonic symptoms were much alleviated. The external appearance of the wounds continued good. As further means were required to maintain the vitality of the parts, the warm fomentations were abandoned, and lotions of acetate of lead substituted. The union of all the wounds was on the third day so decided, that I was able to withdraw some of the needles and most of the knotted sutures. The septum alone had a bluish colour. I now, by injecting warm water, loosened the quills which were firmly fixed by clotted blood, and having cleaned the nostrils, introduced two tents of oiled charpie, and covered the whole nose with linen, wet with the lead lotion and elder infusion. On the fourth day the septum was entirely lost; it was therefore removed with a pair of scissars. Its loss was indeed almost inevitable, as it was too thin, not being larger than a pigeon's quill. In a few days more the swelling of the nose had entirely disappeared, and its general aspect was much improved. On the tenth day the two long compressing needles were withdrawn from the edges of the incisions in the cheeks;

and two other needles, with the same precautions as before were thrust through the upper and lower parts of the nose; eight days after two others were introduced to replace the second set. During the whole period of the treatment, the inner surface of the nose was diligently irritated, in order to promote granulation and thickening of the soft parts. The cicatrization of the inner parts of the nose was then speedily accomplished by injecting a solution of the acetate of lead. I propose at a future period to form a new septum, for which purpose recourse will again be had to a slip of skin from the upper lip.

Plate II. Figure 1, is my patient's profile taken some time after the operation. Figure 2, is the raised nose divided into its three parts: a. where it joins the forehead; b. the ridge; c. the point; d. d. the alæ.

#### CASE V.

*Account of an attempt to form a new Nose from the arm, to repair a mutilated upper Lip, and to remedy an Ectropium in the same subject.*

Miss F. of Berlin, sixteen years of age, had suffered greatly from Scrofula. The nose and middle portion of the upper lip were entirely destroyed; the cavities of the nose and mouth freely communicated, being only separated from each other by the alveolar process and the gums, the latter of which had assumed the structure and appearance of skin. The two incisors of the upper jaw, deprived of their labial coverings, had remained only partially developed, and the two portions of the upper lip were so widely separated, or in other words, so much of its central part was destroyed, that the right remaining portion passed upwards and inwards along the cavity of the nose and terminated in the indurated skin of the cheek, while the left reached to within a few lines

of the eyelid, which being affected with Ectropium hung considerably down the cheek. The skin on both sides of the cavity exhibited the results of previous inflammation and suppuration, particularly on the left side, where it was hard, red and callous. For some years this young person, so much disfigured, had enjoyed perfect health; her constitution was vigorous and robust. Strange to say, she was very vain and fond of dress, and although her countenance was such as no one could behold without shuddering, still she felt the greatest anxiety to mingle in society and to partake of the gratifications it afforded; although she regarded herself as a frightful phantom which chased away all pleasure wherever it presented itself, still did she find the inclination for pleasure irresistible. To be permitted to dance at a ball constituted her greatest delight and happiness. At a masquerade to which her parents took her, none of the masks offered to her choice for partners in the dance, were handsome enough to please or satisfy her, and, when at length she did join the waltz, she attracted every one's attention by the beauty and elegance of her dancing. No one supposed how frightful was the face her mask concealed. She had taught herself to dance from witnessing through a glass door, the instructions given to her sisters; indeed, the number of attainments she possessed had endeared her, and made her necessary to the happiness of her family. I regarded the vanity my patient possessed as a great means of inducing her to bear with patience and courage the series of operations she was about to undergo; I commenced with the mouth, and the operation was indeed most difficult. In the first place I separated to some distance from the cheek bones and alveolar process, the skin along the sides of the nasal cavity, and the remaining portions of the lip. The skin, which was hard, and scarcely pliable was now brought down, and the lower edges of the wounds cut in a semi-circular form on both sides, by which means, on re-union, the middle of the upper lip

would naturally be lengthened. Five pins were necessary to bring the wounds into contact, the ends of which, after being overlapped with thread in the usual way, were removed.

The patient was put to bed, cold applied to the wounds, and an antiphlogistic regimen prescribed. In twenty-four hours I was enabled to remove two pins; on the third day I withdrew two more, and I soon afterwards took away the fifth, which had been placed on the upper part of the wound, immediately under the nasal cavity; at all other parts union was very perfect, here however it had not been so completely effected; the skin rather gaped, but in a few weeks by the use of a solution of the acetate of lead and simple ointment, this portion, had also healed. Drs Schönberg, Kunde, Thaer, Baum, and several others were present at the operation.

Three weeks after the wounds had perfectly united, I operated on the large Ectropium of the left eyelid, according to the plan recommended by Sir W. Adams. On the fifth day after the operation all pins were withdrawn; the operation had been highly successful. I fear I shall scarcely be believed when I assert, the girl now looked, considering her former appearance, comparatively handsome. The disfiguring communication between the cavities of the mouth and nose had disappeared; in consequence of the remaining sides of the lip having been brought into contact, the withered edge of the upper jaw was no longer visible; the ectropium was removed, and the mouth had assumed a very respectable appearance, but still the most difficult part of the whole remained, viz. the formation of a new nose.

I was at first doubtful as to whether it would not be advisable to form this organ according to the Indian method, from the forehead; but fully impressed with the importance of the maxim which I have endeavoured to inculcate, always to spare as much as possible an existing part, and considering that it was a mere matter of chance whether the nose formed in this manner would

turn out well or not, I resolved, notwithstanding the nasal bones being wanting, to form the new nose from the patient's arm. At one time I was much tempted to endeavour to replace it from the leg of a student, which I was obliged to amputate, in the same house where my patient resided, but fearing my failure might interrupt the confidence she so fully placed in me, I gave up this idea. As the method I followed in my operation differed in some measure from those pursued by Tagliacozzi and Von Gräfe, I shall give a detailed account of it. According to these surgeons, after the due position of the arm and the necessary wounds of the face have been effected, the flap was made in such a manner as to *rise from below*—on the contrary, I endeavoured to render the position of my patient such as would allow me to make my flap *rise from above*. I had here in view a more easy posture for the arm, and mechanically to facilitate the flow of blood through the flap. After ascertaining by a wax model the size necessary for the flap, I commenced the operation by removing a portion of skin to form a septum, from the cheek on the right side of the nose. I next proceeded to cut with a sharp scalpel a furrow, almost encircling the nasal cavity, for the reception of the flap to be taken from the arm. This furrow was intended to receive the right side of the new nose, the two alæ, and *half* of the left side; it was unnecessary to make the wound more extensive, as over the uncut portion I proposed to lay the connecting medium between the flap and the arm. The flap was now carefully formed and dissected from the arm, with the exception of a communicating portion of cellular substance and skin; it was brought into contact with the face, and confined by means of several sutures applied by curved needles; at many points, and especially at the two alæ I used the twisted suture. The small strip of skin I designed for the septum, was now drawn from under the flap and sewed to the point of the new nose; two quills covered with oiled lint were placed in the

nostrils. I used no bandages—the arm and head being brought into contact and firmly fixed by broad pieces of adhesive plaster. The edges of the wounds were in close contact, and I entertained great hopes of success, my anticipations being fully supported by the resignation and great resolution of my patient. In the evening, the flap which was before loose and flabby had become somewhat firmer but was still pale; on the following day, especially towards evening, the nose appeared glossy and sunken, and the septum had assumed a dark red tinge. On the third day the appearance was much the same, but on the fourth the organ was again pale and shrivelled; the septum had now assumed a blackish aspect, but as it remained in contact with the tip of the nose after its sutures were withdrawn, I apprehended only the loss of its upper surface. Stimulating applications composed of lavender water, aromatic vinegar and water were now diligently persevered in; the quills were withdrawn, the inside of the nose syringed with warm water, and every care taken to foster and preserve the parts. The patient's health was good, and she endured her sufferings with admirable fortitude. She was much annoyed by matter running down her face, which we endeavoured to receive on pieces of lint placed below. On the sixth day I had no hopes of preserving the septum, and therefore removed it with the scissars. Every thing else appeared going on well, when on the eighth day I observed that the lower part of the nose was so much loosened, from the suppurative process being there established, that only the right side remained in contact with the face. Suppuration could not be checked, and in consequence of a violent change during sleep in the position of my patient's head, the portion—about an inch—that still remained united, and on which I had latterly rested all my hopes, was suddenly torn from its attachment. This misfortune took place ten days after the operation and my poor patient became quite inconsolable; all further attempts were, however, desisted

from ; the arm was loosened from the head, and the wounds dressed. In a few days the incisions on the face were healed, and in four weeks the flap on the arm—though much shrivelled, yet still large enough to admit a second attempt to restore the nose being again made with it—had re-united.

### CHAPTER III.

#### REPARATION OF DEPRESSIONS OF THE NASAL RIDGE.

HITHERTO in treating of the restoration of the nose, I have been occupied, chiefly in detailing the method of raising such noses as have sunk or fallen into the nasal cavity; and I now proceed to describe the method of repairing those deformities that are occasioned by greater or less depressions of the cartilaginous portion of the nasal ridge.

In order to overcome such irregularities I have been in the habit of performing the following operations, which I am not aware have been practised by any other Surgeon. The first consists in removing the depressed portion, in the form of a wedge, by two transverse incisions which meet in acute angles at the cheeks; in the second operation an oval portion is cut from the depressed part, by means of two elliptical incisions extending transversely across the nose; in the third the depressed part of the nose is preserved, and an oval portion is cut out of the walls of the nose, immediately above the ala, exactly opposite to each other, and extending through the septum; its superior angle is towards the ridge of the nose and its inferior to the cheeks. These operations are adapted to each peculiar case, none of them, however, are to be undertaken, unless the rest of



the nose be perfect, with neither depression of the point, nor of the osseous portion.

The first is easily performed: the patient is placed on a chair, and the operator pressing the nostrils together with the thumb and index finger of the left hand, introduces a straight and sharp pointed bistoury at the spot he intends to form the inferior angle of the wedge like incision; the knife is pushed directly across the nose, and, cutting obliquely upwards and outwards, the higher incision is completed. The second incision is to be commenced at the lower point of the depression, and, the knife being carried somewhat obliquely downwards, the two cuts meet each other at the points where the first incision commenced. The piece of nose lying between these incisions and consisting of the depressed portion is thus removed from the face. It would undoubtedly have been more in accordance with the principles of Surgery, to have began with the lower incision, because the blood flowing from above obstructs the operator; in this case, however, had the general rule been observed the upper incision would have been more difficult to make, as the parts could not have been properly fixed.

The hemorrhage is generally very considerable. When it has ceased the lips of the wounds are to be brought together, and the edges of the septum accurately approximated, and confined by two fine sutures, which are most easily applied by means of the common sewing needle; one end of the thread is to be cut off close to the knot, and the other passed out through the nostril. The edges of the septum having been thus firmly united, the incisions on the ridge and the side walls will necessarily become approximated; but, to ensure a perfect union, six or eight needles must be used in the ordinary way and with the usual precautions. This operation is more particularly adapted to those cases where the nose is long, and the deformity, in consequence, is more grotesque and conspicuous.

The second method is applicable when the nose is short and has a straight point, in which case if the former operation were had recourse to, the result would be a mere substitution of one deformity, not less unseemly, for another; for the point of the nose would be so raised, that the nostrils would be brought into view throughout their whole extent.

This operation is conducted as the former; and after the septum has been united by the interrupted suture, the walls of the nose are in the same way to be brought together with the twisted suture. The semi-circular incisions being drawn in by the sutures, become straight wounds, and the portion of the ridge that was formerly depressed is now pushed forward and becomes a prominent bump; this rising, however, soon disappears, and the nasal ridge forms a straight line.

By the third method the depressed part is left entire, as has been already mentioned, and an oval portion is removed from the walls and septum, between the depression and the cheek; this may be effected, as in the first instance, by cutting at once through walls and septum with a sharp pointed bistoury. Union is effected as in the former operations; the consequences of it are, that the depressed portion is pressed forwards, and the deformity removed.

The after treatment consists in a short antiphlogistic regimen and the frequent use of cold applications. In a few days union has taken place; even on the second or third day, the sutures may be removed and strips of sticking plaster applied. A very insignificant cicatrix alone remains.

The methods now described for removing the deformity occasioned by depressed parts of the nasal ridge, may also be employed in relieving other irregularities in the appearance of the organ. They may be followed in cases of cancer of the nose, and be had recourse to where disfiguration exists in consequence of red indurated cicatrices, the results of previous inflammation and

ulceration. The course of the incisions must necessarily vary with the nature and extent of the evil to be remedied; and re-union is to be effected in the manner already described.

We now come to individual cases illustrative of the practicability and usually successful termination of these operations.

#### CASE I.

Mr T——r, thirty-eight years of age, in consequence of a syphilitic ulcer having destroyed a portion of the septum, was greatly disfigured by a horse-shoe-like depression of the middle of the nasal ridge. Several years had elapsed since all venereal taint had been removed, and he now requested my advice, hoping by an operation, that the appearance of his countenance might be improved.

The nose being long, and somewhat bent at the point, I adopted the first operation and, proceeding as has already been described, removed a wedge-like piece, nearly half an inch broad at the ridge, bringing the edges of the cut septum and walls into accurate contact. Cold was applied, and a rigorous diet enjoined. The patient felt scarcely any uneasiness, the swelling of the nose was inconsiderable, and a perfect union was to be expected. So early as the third day most of the pins were removed. The threads which united the divided septum, the ends of which hung down through the left nostril, were removed on the sixth day by introducing a small pair of scissars into the nostril, cutting the sutures, and gently withdrawing them. On the twelfth day the patient was pronounced cured of all deformity.

## CASE II.

*Excision of a Cancerous ridge of the Nose.*

IN a former part of this work I mentioned the case of a lady troubled with an old cancerous ulcer on the prominent nasal ridge, in whom, by the excision of the diseased part with a wedge-like portion of the ridge, I was enabled to give a better form to the organ, and remove all traces of the disease: the following case is similar.

The wife of a sea Captain—Mr Pyritz of Berlin—thirty-eight years of age had for two years suffered from a cancerous ulcer on the nasal ridge; it was very prominent, and gave a beak-like appearance to the nose. Innumerable ointments, plasters and lotions had been applied unsuccessfully; the ulcer was now nearly as large as a sixpence, and part of the septum having been destroyed, a probe was easily passed beneath it from one nostril to the other. Although great deformity would undoubtedly be the result, I determined to operate, being convinced that no means but the knife could cure the disease. A regularly V-shaped piece, including the ulcer, was removed, the parts brought together in the usual way and cold cloths applied. In eight days I had the satisfaction of dismissing the woman perfectly cured, and with a nose far more agreeable to the sight, than it had previously been.

## CASE III.

*Removal of a cicatrized Band from the Nose.*

SOME years ago, Mr G., a student of L., had received a sabre wound running obliquely downwards from the

inferior margin of the nasal bones, through the septum and walls towards the lip. A young medical student with more zeal than judgment, had hastily sewed the parts together with a large curved needle—such as is used in dissecting—covered the wound with lint and plaster, and enjoined rest to the patient, who unfortunately thinking himself perfectly safe with the bandage, neglected the advice that had been given him, and continued to live as if nothing had happened. When the dressings were removed some days after the accident, gangrene was found to have taken place, and the whole nose greatly inflamed. The sutures were removed, and under a very rigorous antiphlogistic regimen the inflammation abated, the gangrene disappeared, and the furrow filled with very luxuriant granulations. The wound soon healed, but a red and indurated cicatrized band, a quarter of an inch broad, ran across the nose.

Two years after this—in another duel—he again received a straight wound along the course of the old cicatrix, and completely penetrating the nose. I saw him immediately after; the fore part of the nose was hanging down, pallid in appearance, while the upper portion was bleeding copiously. I might have easily brought the parts together and confined them in the usual manner; but I would not allow the opportunity to pass, without endeavouring to embellish the nose by removing the old cicatrix. I therefore seized the point with the left hand, and removed, in the form of a narrow wedge, the whole of the cicatrix which bordered the wound. The cut surfaces were admirably adapted to each other, the wound healed kindly by the First Intention, and on the eighth day the patient left his room. His appearance was much improved, nothing but a slight scar, scarcely perceptible, running across the nose.

In the above related cases, it was necessary in order to remedy the depressions of the nose, to remove a

wedge-like portion from its ridge and walls; a few examples will now be detailed in which the semi-circular excisions were had recourse to, and the nasal ridge was preserved.

#### CASE IV.

THE fore part of the nose of Mr H., Doct. Phil. was considerably depressed, the result of a scrofulous ulcer under which he laboured in his childhood. The nose must once have been very handsome, and had a very fine and straight ridge.

Inserting the knife obliquely across the nose, I removed by two semi-circular incisions—meeting in acute angles both on the ridge and at a point parallel to it, where the nose joins the face—a portion of the side walls and septum; the breadth of the flap in its widest part was nearly the third of an inch. The edges of the septum were brought together by three sutures, and those of the wounds on the ridge and sides were closely approximated by six needles. The depressed portion now rose like a bump on the ridge of the nose, but on the third and fourth days, when the inflammation had subsided and the pins were removed, the bump disappeared and the nasal ridge became almost straight. Four weeks after the operation nothing was visible but a slight scar, and the patient left my care highly delighted with the result of the operation.

#### CASE V.

IN consequence of a syphilitic ulcer, a portion of the cartilaginous ridge of the nose of a carpenter's wife, Mrs F., aged forty-four, had become depressed. She had gone through a course of mercury, and was free from disease. The nose was so small that any considerable

loss of its substance would only the more disfigure it. I therefore determined to remove two small pieces from below the depression. The nostrils were held together, and cutting across from left to right, a small upright oval piece was removed from the whole thickness of the nose. The bleeding was inconsiderable, and on bringing the edges of the side wounds together by the three twisted sutures, the depressed ridge rose up. I left the septum disunited and applied cold. Much swelling ensued, but on the third day I withdrew a pin on each side, and another was removed on the fourth. On the fifth day the last pin had ulcerated through, and caused on the left side, a small opening into the nasal cavity; by the fourteenth day, however, after repeated applications of lunar caustic, it had skinned over. The operation was very successful, the depression of the ridge being entirely removed.

Longitudinal excisions from the nasal ridge, though not applicable for the removal of depressions, are, still very useful in extirpating cancerous ulcers from the part. The usual method for removing such sores, is simply to dissect them from the cartilage, leaving the wound to fill up and heal by granulation,—a plan that necessarily leaves a very thick, red and disfiguring cicatrix. In small ulcers it is sufficient to cut through the cutis and dissect out an oval piece, in the centre of which the disease is situated; if the sides of the wound are then separated from the bones and cartilage, it will be easy to bring their edges together, by means of the twisted suture, and to retain them in such close contact that the wound will heal by the First Intention. But should the sore be large, and the portion to be removed consequently much broader, although it will still be possible to bring the edges of the wounds together and to ensure a perfect union, yet, owing to the tightness of the skin the cartilaginous ridge will be pressed inwards, and a greater or less depression will be the result. I made these obser-

vations, on two persons, at a time when I was not so well acquainted with Rhinoplastics as I now am; the one was a lady sixty-six years of age, the other the wife of a tradesman forty years old. Both suffered from cancerous sores, one third of an inch broad, on the forepart of the nose. Having cut out an oval piece—which included the disease—from the nasal ridge, I separated the skin on both sides to some extent, and united the wound, in the one case by seven, and in the other by six sutures. Notwithstanding the great tightness of the skin, the wounds in both cases healed by the First Intention, and only inconsiderable depressions remain, which very slightly deface the profiles. With my present views and experience I would in both instances have cut out a wedge-like piece from these noses, and would undertake it even now, were the ladies willing to submit to another operation.

In order to avoid the deformity which is apt to follow the removal of large portions of the cartilaginous ridge, where the wedge-like excisions cannot be had recourse to, I am in the habit of cutting out a longitudinal strip from the whole length of the nose. The knife is inserted at the nasal process of the frontal bone, and carried obliquely downwards along the osseous ridge. When it arrives at the cartilaginous portion it is drawn still farther to the side, and the incision terminates at the point; a similar cut is made on the opposite side, and a flap, including the diseased portion, is thus completely isolated. As soon as all bleeding has ceased, union is induced by the twisted sutures. Should a point below the nasal bones project angularly and sharply, it must be removed. Cold applications form the chief part of the after treatment, and the pins are one by one to be withdrawn.

This mode of operating, which of course has the effect of rendering the nose smaller, was successfully employed by me in three cases of cancer; two of the patients were elderly women, and the third a schoolmaster in his



sixty-second year. In the latter case, the cartilaginous ridge had already been destroyed, and the ulcer communicated with the nostrils.

I have frequently adopted the same method where very wide cicatrices, occasioned by sabre wounds which have been carelessly united, ran obliquely across, or longitudinally along the nose. The mere superficial excision of them I found was of no avail. I was therefore induced to split the nose longitudinally, remove the scar, and, by approximating the wounds, cause reunion, when all deformity disappeared. I have already spoken of cross-wounds on the nose, and would, did I deem it necessary, instance several cases of longitudinal wounds where this method of removing the old cicatrix was had recourse to.

There are but few cases of encysted tumours on the nasal ridge. I have met with but one, and that was in a young girl, sixteen years of age, whose nose was much deformed by a tumour as large as a hazel nut, situated below the bones. Fearing a scar would remain, I opened the swelling from the left nostril, when a yellowish fluid escaped and the tumour disappeared. I applied pressure externally, and the patient has had no return of the complaint.

*On Improving the form of the Nose, by operating on the Cartilaginous Septum.*

WE generally find a faulty depressed state of the point of the nose, in persons afflicted with the double hare lip; while in cases of simple hare lip and simple fissure in the jaw, the point of the nose is, usually, naturally placed. I observed that in almost all individuals afflicted with the former kind of malformation, there was a deep fold in the cartilaginous septum, even when its external skinny portion was naturally connected with the rudimental upper lip; and that even after the most suc-

cessful operation for the removal of the deformity, this flattened and drawn down appearance of the point of the nose, still remained. The cause of this depression is the fold in the septum, on cutting through which the deformity is immediately removed.

The operation is as follows: The patient is seated on a chair, with his head supported on the breast of an assistant. The Surgeon holds the columna—which in these cases is not immediately placed on the cartilaginous septum, but rather to the side of it—with the thumb and fore finger of his left hand; he draws it still further to the side, till the fold in the cartilaginous septum appears, which is then to be pierced with a small scalpel, and the whole partition in the interior of the nose is cut through from the columna as far up as the nasal bones. The point can immediately be fairly raised by the fingers. If the surgeon were now to leave his patient, the result of the operation would not equal his expectations, as the cut septum would speedily re-unite. To prevent immediate re-union taking place, pressure must be applied to the sides of the nose, in order to force the point forward, and thus to keep the edges of the divided partition considerably asunder, at least to the extent of several lines. The subsequent inflammation of the edges followed by suppuration and granulation will, at a subsequent period, fill up the cleft in the septum.

This simple operation is one of great importance, and it is astonishing how much a single incision improves the countenance. In several persons on whom I have operated for the double hare lip, I have followed this method with distinguished success, and have, as yet, found no reason to abandon it. The compression of the side of the nose, in producing the necessary condition of the septum, has been managed by me in three different ways. That which produces the most certain and satisfactory projection of the point, is the same as I have recommended for the support of those sunken noses that have been raised from their cavity. There is on each side of

the nose, a small leaden plate or splint, or a piece of firm leather previously pierced with holes, by which pins are to be introduced, pushed through the nose and brought out at the holes in the splint, on the opposite side. The projecting ends of the pins are to be spirally twisted, and the sides of the nose will thus be pushed together to any necessary extent. The pins may remain without any danger for two or three weeks ; or, if the swelling and inflammation be considerable, they may be loosened, and, if three have been used, the middle one may be withdrawn.

The second method is far simpler ; it consists merely in squeezing the sides of the nose between a leaden plate about two inches long and one inch broad, which is to be bent and laid over the nose. The third plan, though not advisable or to be depended upon, is to introduce quills covered with oiled lint into the nostrils, which are thus kept distended, and the point of the nose projecting.

The after treatment of this operation consists in cold applications. A moderate degree of compression seldom causes so much inflammation as to render its discontinuance necessary ; should it however do so it must be discontinued and pressure again employed as soon as the inflammatory symptoms have abated.

In three or four weeks the gap in the septum has generally filled up, and the point of the nose acquired its due prominence ; yet still it is advisable to wear for some further time, especially at night, the piece of lead bent across the nose. I could enumerate many cases in which this operation has succeeded ; but a detailed account of them, as they are nearly such as I have already described, would possess little interest.

## CHAPTER IV.

### ON THE IMPROVEMENT OF THE NOSE BY TRANSPLANTATION FROM NEIGHBOURING PARTS.

IN the preceding chapter the method of improving misshapen noses, without any transplantation of skin, has been described: the various modes of restoring certain portions of the nose from the neighbouring parts have now to be detailed.

The subject includes, 1st, The elongation and formation of the Columna in the double hare lip.

2d, The formation of a new Columna from the lip.

3d, The formation of the Alæ from the cheeks or forehead; and

4th, The formation from the forehead of the upper ridge of the Nose, when the bones have been destroyed.

#### *Elongation of the Columna.*

IN hare lips which are accompanied by clefts in the bony part of the palate and alveolar process, a portion of the superior maxillary bone will be found projecting more or less forward. This projecting bone is covered by a portion of the upper lip, which is generally cut off as useless, when the projecting bone is removed or forced back by pressure. In such persons we find not only the fold or contraction in the cartilaginous septum

alluded to in the last chapter, but also a shortened Columna, to lengthen which, I preserve and make use of this hitherto useless labial appendage. I separate it from the bone, and remove the shortened or contracted columna from the cartilaginous septum, and in place of which, after the projecting bone has been removed and the two sides of the lip united in the usual way, I apply the rudimental lip, which is frequently too large for the purpose, and it becomes necessary to pare it to the proper size; it is then fastened by sutures to the point of the nose and septum, to which it speedily unites. The sutures may generally be removed about the eighth day.

We sometimes find it advisable to defer uniting the edges of the lips until some time after the removal of the projecting portion of the bone. In such cases I would recommend that the formation of the new columna be not delayed, as the Surgeon will find the depending piece of skin very much in his way; I do not, however, at this time attempt to pare it to its proper shape, but wait until the sides of the lip are firmly united.

I cannot flatter myself that in the preceding observations the experienced and practical Surgeon will find views that have not before struck him: they may, however, serve to direct the attention of those who do not always think for themselves, to the subject; and point out the necessity of devoting the most scrupulous consideration, in our operations on the human face, to objects which may appear comparatively unimportant. In such operations nothing is unimportant. As society is constituted, a considerable portion of the happiness of an individual depends upon his personal appearance; and it is no matter of indifference to our patient whether we discharge him from our hands with a Columna half an inch, or an inch in length, or whether the point of his nose be drawn down, or gracefully projects.

I deem it unnecessary to detail individual cases. I

have frequently performed this operation—varying and modifying it according to circumstances—with the greatest success, and I feel no hesitation in recommending it to the Profession.

*Formation of the Columna from the upper Lip.*

THE restoration of the Columna from the upper lip, can be attempted only when the point of the nose remains in good preservation and stands upright. Such cases are not uncommon, and are frequently the result of Ozæna, which has destroyed the Columna and a portion of the septum. The principal rule to be observed in most cases of transplantation, and especially in the one now under consideration, is to be under no apprehension of making the portion to be transplanted either too long, or too broad. In the formation of a Columna it cannot of course be made longer than the breadth of the lip; but we must be careful to form it of a sufficient width. Where the lip is narrow, as after a cancer has been removed from it, or when the patient has been previously operated on for the double hare lip, and the middle flap removed as useless, we are unable to cut a longitudinal piece from the lip to form a new Columna; but here there is nothing to prevent the Surgeon from supplying the necessary portion by a flap cut horizontally from the lip, or even the cheek, and exceeding in length the breadth of the upper lip.

In the first case, where the lip is fleshy and of sufficient breadth, I commence the operation by making raw the whole lower surface of the nasal point, and then by two perpendicular incisions, continued through the lip, and into the nasal cavity, I form a flap three quarters of an inch broad; having separated it from the alveolar process, I remove a small portion from its red labial margin and attach it by twisted sutures to the point of the nose, which was previously prepared for its recep-

tion. Should it appear too short, it must be still more separated from the bone at its base. When bleeding has ceased, the edges of the lip are to be united in the usual way. When the cartilaginous septum has not been destroyed, the chances are more in favour of a successful termination to our operation; in this case its edge is to be made raw, and a groove for its reception formed in the portion removed from the lip, to which it is to be united in the manner already described.

At first the Columna has a very shapeless and unnatural appearance, which becomes still more so, when the subsequent inflammation and swelling take place. Gradually, however, it shrinks, its margins are inverted and it becomes much narrower in the middle, while its upper and lower extremities are kept full and wide by their broad uniting surfaces. It now approaches to a proper form and appearance, which may be increased considerably by the pressure of a small leaden plate.

It is very bad practice to form a Columna narrower in the middle than at its extremities. I have seen several where this had been done; the consequence of which was that they appeared scarcely thicker than a thread. I have also known many such cases, in which the newly formed Columna had altogether withered and decayed.

In the second case I have alluded to, where the lip, owing to its natural formation, or to previous operations upon it, is either too narrow or too tense, to allow the necessary portion to be removed from its width, I recommend that a horizontal strip be cut from it, and even, if necessary, continued into the cheek. The wounds must be accurately closed by sutures before we apply the end of the flap to the point of the nose. To enter more fully into the method would be but to repeat rules which have already been laid down.

The most important part of the after treatment is the use of cold applications. The pins may be removed on the third and fourth days; and, if the inflammation be

very severe, the sutures must be drawn out at an earlier period. After all wounds have perfectly healed, the Surgeon may remove any inequalities on the new Columna; and if, contrary to expectation, it be still too short, he may easily lengthen it by an incision at its base, continued through half of its substance.\*

#### CASE.

IN consequence of a venereal ulcer, Mr L. had lost his Columna nasi and a large portion of the cartilaginous septum. Having perfectly recovered from the complaint, and being in his thirty-first year, and of a sound constitution, I commenced the operation without any preparation. Having excised the cuticle from the lower and fore part of the nasal point, I cut a flap, about three quarters of an inch broad, from the upper lip; and giving it the turn necessary to render its dermoid surface still the outer side of the Columna, I united it by means of three twisted sutures to the point of the nose. Four sutures were required to secure the cut edges of the lip. Violent inflammation followed, which was happily relieved by cold applications. On the fourth day all pins had been withdrawn, and their place sufficiently supplied by slips of adhesive plaster. Four weeks afterwards, when a most intimate union had taken place at the point, the twist at the base of the new columna was cut through, and the flap being thus sepa-

\* In the account of this operation I have not as hitherto religiously followed our author. Deiffenbach appears unacquainted with the facility with which, under certain circumstances, mucous membranes take on the appearance and properties of the dermoid tissue. (see Introduction, page 44.) He therefore *twists* his flap so that the outer surface of the lip may still hold the same situation with regard to the Columna; and afterwards details the method of removing at a subsequent period the bump caused by the twist. I have considered it unnecessary to introduce this subject into the translation.—TRANSLATOR.



rated, was placed in a groove previously prepared for its reception at the upper part of the cicatrized wound in the lip, where it was confined by two sutures; a portion of it united by the First Intention, the remainder granulated, and in three weeks was also united to the lip.

I could cite other cases of this operation, and also detail several in which the whole Columna, or portions of it, were restored, either by the method just instanced, or by horizontal flaps from the lip and cheek. I do not, however, think it necessary to do so, the preceding observations being sufficient to guide the Surgeon in his attempts to renew the organ.

#### *Formation of the Alæ from the Cheek.*

My first attempts to form either ala from the cheek were highly unsatisfactory, as the newly formed part was always unnaturally thick, and I could not succeed in preventing the nostril from closing. At length, however, I obviated this last deformity, by a kind of folding inwards of the edges of the flap; by which means I think I have been able to remove a great impediment in the way of bringing the Rhinoplastic art to perfection, the greatest difficulty in which has always been to prevent the nostrils closing. I shall not here detail the method of operating, as the subject will be sufficiently discussed when treating of the restoration of the entire nose.

The skin of the cheek is not well adapted, independently of the large scar it always leaves, for the formation of the alæ. When, however, it is had recourse to, care must be taken that the flap be made sufficiently large—at least one-third larger than the natural ala. It should be of a triangular form; its apex is attached to

the cheek, while its base is fastened to the nasal ridge and to the other necessary points for union in the usual way.

The after treatment has nothing peculiar.

*Formation of the Alæ from the Forehead.*

It is only when one ala is destroyed that we can attempt its restoration, either from the skin of the cheek or that of the forehead; for when both ala are wanting, the point of the nose always sinks, and thus a very different mode of restoration becomes necessary.

As I have before observed, the skin of the cheek is not well adapted for our purpose; and in some cases it is preferable to obtain the necessary flap from the forehead. The operation is as follows:—The edges of the stump being removed, a sufficiently large flap, with a neck fully the length of the nose, is separated from the forehead; the nose is now to be split throughout its length, the wound being continued into one side of that by which the flap was formed, which is then turned round, its neck fitted into the fissure made in the nose for its reception, and its broader part attached to the previously prepared edges of the stump. After a perfect union has taken place, the neck of the flap is to be removed from the nose, and the edges of the wounds again brought together. I adopted this method with distinguished success in operating on a washer-woman aged forty, who had lost one ala. For the most part cold applications formed the after treatment. Some needles were removed on the third day; and on the fifth all the sutures had been withdrawn. Six weeks after the operation the neck of the flap was removed, and in four months the new ala had assumed a very natural appearance.

*Formation of the Nasal Ridge from the Forehead.*

WHEN the nasal bones and osseous septum have been destroyed, the upper part of the nose sinks or falls in; but if the cartilaginous septum has not suffered the point of the nose remains prominent. This kind of deformity—which is very unsightly—is often the result of accident; but more frequently of a syphilitic Ozæna or Scrofula. Before undertaking any operation it is necessary to be assured that the patient's health is perfectly restored and good; and more particularly that caries is not still going on in the facial bones. Many proposals have been made to remedy the appearance of a nose thus flattened; we even hear and read of golden plates being introduced beneath the sunken portion, which is thus elevated. Such stories, however, are too ridiculous to need any exposition of their fallacy, and were it even possible to introduce and so to fix any plate that would support the nasal ridge, inflammation, suppuration and gangrene would be the inevitable results.

The plan I adopt to remedy the deformity now under consideration consists in removing a flap from the forehead, not—as has been proposed—to be placed *over* the sunken ridge, but to be introduced into a fissure made on the nose for its reception.

I proceed as follows: I insert the point of a small scalpel at the nasal process of the frontal bone and draw it down, through the middle of the sunken ridge, and along the length of the nose nearly to its point; with a pair of forceps, I now hold one edge of the wound on the nose, which has thus been divided into two portions, and separate the skin from all adhesions or attachments as far down as the cheek. The opposite side is treated in the same way, and the skin freely loosened as high up as the eyebrows; plenty of space is thus obtained for the flap to be introduced, which I now proceed to form. Having

laid an oval piece of adhesive plaster—the exact dimensions of which have previously been ascertained—upon the lower part of the forehead, I remove a flap the size of the model, the wound on one side of the flap passing into the incision on the nose: the bleeding having ceased, the flap is turned round, and fitted into the fissure, prepared for its reception, on the nose; the length of the fissure may be increased should the flap be found to be too large. On no account must the flap be shortened; and the firmer it is wedged in the better, as the side walls will then assume a more erect position. The flap is retained in its situation by several twisted sutures.

#### CASE I.

MRS SCHREINER, aged thirty-eight, the wife of a day-labourer, was afflicted as has been described; the upper part of the nose was level with the cheeks, while the point remained prominent. She had enjoyed good health for many years, and I proceeded to the operation. I formed the flap as above directed—one and a half inches broad in the middle, and two inches in length—and fixed it in the fissure by six pins on each side. Four pins effected a union of the wound in the forehead. Much swelling and inflammation ensued, which, on the third day, by the uninterrupted use of cold applications, had considerably abated. I now withdrew one pin after another, and on the fifth day all sutures had been removed. With the exception of a small point on the forehead, all wounds united by the First Intention.

Four weeks after the operation I removed the twisted portion of the flap by means of two small oval incisions, and united the wounds by two twisted sutures. Owing to the close approximation of the side walls to the flap—to which they firmly adhered—the ridge had assumed a very vaulted appearance, which, eight weeks after, I

considerably improved by excising a long slender strip throughout its length.

#### CASE II.

MR SOBOLOW, a Russian merchant, of an athletic constitution, and twenty years of age, received a dreadful blow on the nose. He fell and was carried home senseless. Considerable swelling and inflammation of the face, and especially of the nose, ensued; suppuration followed, and the nasal bones were discharged. From Mr Sobolow's account, it was some months before he recovered. When he presented himself to me, the upper portion of his nose was depressed, and he exhibited a very unsightly appearance. Plate III. is a striking resemblance of the gentleman at this period. On a more strict examination I found the nasal ridge deeply depressed; a small portion of the bones still remained; and it was easy to see through the wide nostril into the cavity of the nose, and to perceive that nothing remained of the partition but the cartilaginous septum.

I performed the operation—which differed but little from the last—with the assistance of Dr Eissen of Strasbourg and Dr Lechmann of Dorpat. I commenced by forming my oval flap from the forehead, two inches long and one inch and three quarters wide in its broadest part. I then split the nose along its ridge from its upper part nearly to the point, and separated the side walls to some extent from their osseous base. When bleeding had ceased, the flap was turned and fixed in the fissure by nine sutures; four sutures were required to close the wound on the forehead. Cold applications followed, and my patient was subjected to a rigorous antiphlogistic regimen. Notwithstanding his robust habit, but little reaction took place; blood-letting was unnecessary. On the fourth day all sutures had been removed.

With the exception of a few points from which matter could be pressed, union had taken place. On the fifth day the cold applications were discontinued; a tepid solution of acetate of lead was had recourse to, and sticking plaster was applied to such parts of the forehead and left side of the nose as had not healed. On the fourteenth day perfect union had taken place in all parts.

I next proceeded to improve the appearance of the nose. The transplanted flap formed a high and lofty ridge, and the twisted portion a hard excrecence, situated rather to one side. I cut it through, and placed the lower wound in a furrow prepared for its reception, exactly between the eyebrows. A few ligatures confined it, and it united by the First Intention. I pass over a few other unimportant improvements to the nose, such as paring the cicatrices, &c. Nine weeks after the operation the patient was dismissed with a very good nose,—such as appears in Plate IV.

I witnessed a similar case in Dresden: the operation was very skilfully performed by my friend Professor von Ammon. The patient was a woman, the upper part of whose nose, in consequence of the loss of the nasal bones, had fallen in. A flap was brought from the forehead and introduced into the fissure formed by dividing the nasal ridge. This case, which the Professor promised to publish in Rust's Magazine with illustrative drawings, terminated successfully.

## CHAPTER V.

### ON THE RESTORATION OF THE ENTIRE NOSE, AND ON THE FORMATION OF ITS POINT AND LOWER PORTION.

MUCH of what has already been related concerning the restoration of certain portions of the nose, must necessarily be recapitulated in this chapter, and hints which I have formerly thrown out, while treating of other operations, will now be circumstantially explained and illustrated; it will therefore be necessary that the reader should not be content with isolated portions of the work, but patiently read the whole. There are many Surgeons whom nothing will satisfy but an account of new instruments, machines, bandages and plasters; such will, I fear, be disappointed, and lay this book unsatisfied aside. Nevertheless, I venture to hope that the friend of simplicity in Surgery will bestow an indulgent attention upon my operations and my views, and deem some of them not unworthy of consideration and imitation. I have preferred adopting my own course, often setting out with a mere allusion to cases and their mode of treatment; this however, the reader will find followed by general remarks and particular directions, which due consideration and very extensive experience have induced me to lay down and present to the Profession.

The following are accounts of two cases in which I succeeded in restoring, from the skin of the forehead, the

point and lower portion of the nose, including the *Alæ* and *Columna*, which accident had destroyed. According to the generally received notions on the Rhinoplastic operation, deformities of this nature would have been removed, according to the Italian method, from the arm; these two cases, however, will I think fully exhibit the advantages which attend the Indian method of operation as modified in my practice.

#### CASE I.

MR DITTRICH of Gottingen, a vigorous and handsome young man, a soldier in the Brazilian service, returned to Germany uninjured "from many a hair breadth 'scape" both by sea and land. Scarcely had he reached his native country when fate involved him in a duel, in which he lost a large portion of his nose. Presenting the right side of his face to his adversary, he received a wound which, commencing at the point where the nasal bones meet the cartilage, was continued downwards and backwards, and deprived him of the whole lower portion of his nose, including the point, a portion of the *ala*, and parts of the cartilaginous septum and *Columna*. An able Surgeon, who saw him immediately after the accident endeavoured, when bleeding had ceased, to reunite the separated portion. He employed the twisted suture and treated the patient upon general principles; but all in vain, gangrene ensued and the replaced part of the nose was utterly destroyed. The edges of the wound healed kindly, and he soon afterwards presented himself to me. Plate V. represents his profile.

I operated in the presence of Drs Rust and Kunde, and first removed a strip of skin from the edges of the remaining portions of the *alæ*. These I brought together, and united, by fine ligatures, to the skinny margin of what remained of a cartilaginous septum. My reason for this was to increase the size, or rather the length of



the partition, and thus, by rendering it more bulky, to afford a greater support for the part to be applied. I now formed, in the manner already described, the flap from the forehead, and having cut through the ridge, and separated the skin on each side from the nasal bones, in order to form a furrow for the reception of the nourishing neck, I twisted the flap, fitted its long neck into the fissure on the ridge, and applied its broader part to the cut edges of the stump. Eighteen needles retained it in its place, while four united the wound on the forehead.

Mr D. bore the operation with remarkable fortitude, scarcely uttering an exclamation of pain; the edges of the wounds were in close contact, and my only fear was for the skin of the forehead, which, to approximate the wounds had been much stretched. The patient was put to bed, and confined to the strictest antiphlogistic regimen, being allowed nothing but water gruel and lemonade; the bowels were regulated by Epsom salts, and cold cloths were constantly applied to the forehead and nose. With all these precautions, added to copious bleedings, both local and general, severe inflammation attacked the nose and cheeks. I feared gangrene might ensue, and on the second day withdrew eight needles; blood flowed with them all, and I kept up this very beneficial hemorrhage for several hours by the application of tepid water. On the fourth day I had removed all needles, and found the wounds had united in every part. The swelling now began to subside, and on the eighth day the whole face, with the exception of the point of the nose had resumed its natural size. It was interesting to notice the different changes of colour that took place in the flap. Immediately upon being separated from the forehead it had a bluish appearance; eight minutes later, during which time bleeding had ceased, it became very pale in the middle, while its edges were of a dark blue hue, and when fastened to the stump it became red, and soon began to swell. As the

twisted portion seemed too tight, owing to its somewhat unnecessary breadth, I endeavoured to relieve this by lessening its size. Blood flowed from the new wound, and the flap again became pale and contracted. I kept up the bleeding for some time. Eight hours after the operation the flap was again red, somewhat swollen, and of a moderate temperature. Next morning the swelling had much increased; the nose too, was redder and more hot and painful, and towards evening the inflammatory symptoms had still further increased. On the fourth day the swelling had abated, the nose was paler and not hotter than the rest of the body; on the eighth the epidermis had peeled off. On the fourteenth day the long neck of the flap, introduced over the nasal bones and along the ridge of the nose, had become firm and consolidated; it was intimately united to the neighbouring parts and formed a compact and very prominent mass. I now proposed to remove it, and to reunite the side walls of the nose; my patient, however, would not consent, apprehensive that the point might wither in consequence; it was not until five weeks after the operation that Mr D. would permit its excision. Dr von Ammon now assisted me, and four needles united the wound, which healed in a few days.

Mr D. was introduced to the Privy Counsellors\* Drs Hein and Rust, and to the Physiological and Medical Society of Berlin. He soon returned home, highly pleased with having obtained a countenance more human.

Although every one praised my performance, I was not satisfied with it, for the point was too short; yet still Mr D.'s nose was handsome, and somewhat Roman in its appearance, as is well exemplified in Plate VI. Its colour was very natural, and the scar on the brow scarcely perceptible.

Many things combined to render the termination of

\* A title, conferred in Germany on Physicians to the Sovereign.

this case successful: the patient was in the vigour of youth, and in the highest degree of health, and the disfigurement owed its origin to accident and not disease. On the other hand the skin was very irritable, so much so, that even the application of sticking plaster had often produced erysipelatous inflammation—a circumstance which deserves consideration; and it is probable that the operation would have altogether failed, had it not been for the cold applications that were constantly employed, the copious bleedings, and the saline purgatives.

It was with much trepidation that I ventured, in this case, for the first time to bring from so great a distance a flap of skin; and I could not but be aware that, in laying bare the nasal bones to form a furrow for the reception of the long neck, through which the circulation was in a great measure to be carried on, and the newly formed point of the nose to be nourished and preserved, I ran a great risk of inducing caries of the bone—a not improbable result, had gangrene taken place.

With the experience I now possess, I blame myself for making this neck too broad, and the flap altogether too short; the first was to no purpose; and the appearance of the nose would have been much improved had the latter circumstance been attended to.

#### CASE II.

MR GROTH, an advocate from Wismar in Meklenburg, had lost the point of his nose in a duel with broad swords—a practice very common among students of a German University. A young Surgeon who was present, immediately re-applied the separated portion, and secured it in situ, with the twisted suture and adhesive plasters. Gangrene, however, ensued, the point was necessarily removed, and the wound speedily healed. It was four years after the accident that I saw this gentleman. In

the interim he had worn an artificial point; but latterly, from the inconvenience it occasioned, and becoming habituated to the disfigurement, he neglected all means of concealing the loss he had sustained. Although scarcely more than the point of the nose had been cut off, his countenance was very peculiar and disagreeable. It is well exhibited in Plate VII., where the upper part of the *alæ* and the greater portion of the *Columna* are seen still remaining.

Drs Stark, Kemper and Moritz assisted in my operation, and it was certainly with some hesitation that I applied the knife to so handsome a forehead. However, a flap was formed, as in the last operation, sufficiently large to provide a new *Columna*, *alæ* and point; in this case the nourishing neck was made about three quarters of an inch broad. The nose was then split throughout its whole extent, by a cut forming a continuation of the wound on the right side of the forehead. The skin was separated for a few lines from the nasal bones, the flap turned round and fixed in its proper position by nineteen needles—three for the *Columna*, eight for the point and *alæ*, and as many for the long neck. Six pins of a stronger description were employed for the forehead; but with all our endeavours we could not bring the edges of the wound into contact; with the utmost stretching, a space of three quarters of an inch remained, and I therefore made a deep incision in each temple, or rather on the scalp, preferring to heal by granulation, a wound, the scar of which the hair would conceal, than to mark the forehead of my patient. We had now no difficulty in bringing the cut surfaces into accurate approximation. Both temporal arteries were cut, and the hemorrhage was very profuse.

The patient, who appeared but little affected by the operation, was put to bed, and the usual treatment enjoined. The flap which was at first very pale, in half an hour had increased in size and towards evening was much swollen; both general and local inflammation,

however, were lessened by taking twelve ounces of blood from the arm. On the second day I felt convinced the operation would succeed, since although the swelling had been considerable, union had taken place. On the third day all needles were withdrawn, and with the exception of a small point in the centre, the wound on the forehead had united. On the fourth day the swelling had increased, and my patient was so feverish that I again took ten ounces of blood from him: gradually, however, these symptoms decreased, and the face and nose assumed a more natural appearance. The small point in the centre of the wound on the forehead still discharged pus, but I drew its edges together by sticking plaster, and it soon healed. On the fourteenth day Mr Groth was able to leave the house.

Three weeks after the operation the nose was such as seen in Plate VIII. I now began the enlargement, or rather formation of the nostrils, according to the following method.

In that portion of the skin removed from the forehead and intended for the columna—Plate IX, Figures 1 and 2—I formed, on each side, a small triangular flap, the apex of which was towards the posterior part of the nostril. It was now reflected upwards and forwards, and, the inside of the nose being previously made raw, the small flap was fixed in its position by a small bent plate of lead, through which a needle was passed, transfixing the flap, and coming out on the ridge of the nose; it was here passed through another leaden plate, and its point twisted to retain all in their proper situations.

In eight days the flaps appeared firmly united within the nose; I therefore uncoiled the point of the needle and removed it. The flaps still did not afford me complete satisfaction, as they rose when pressure was removed; but, far different as was the nose from what I considered it ought to be, still I was greatly congratulated on my success by my medical brethren. Eight weeks after the operation however, I greatly improved the appearance

of the nose by removing, with the assistance of the Staff Surgeons Funk and Plettner, and Dr Jacobson, a narrow strip of skin from the nasal ridge. My two incisions terminated in an acute angle on the flap near the point of the nose. The wounds were brought together as in Plate IX. Figure 3, which was drawn at the time of this last operation. Cold applications and a spare diet were again enforced. On the third and fourth days all pins were removed, and the whole form of the nose now surpassed my fondest anticipations. I still thought my patient's appearance might be further improved, for a short and thick scar remained on the forehead, and the two small flaps in the nostrils did not sink sufficiently into the substance of the nose. Fourteen days afterwards therefore, I removed the cicatrix on the brow, and brought the edges of the wound together by four needles. Union by the First Intention took place, and I removed the sutures on the third day. I also improved the nostrils by making incisions on each side of the small flaps, and sinking them still deeper into the point.

After a residence in Berlin of about ten weeks, Mr Groth returned to Wismar quite relieved of all disfigurement. Plate X. is a striking likeness of him at this period.

The case just related is important in many points of view. In it were avoided all the errors and mistakes that occurred in conducting the preceding one. In forming the flap, that portion intended for the point was made *two inches broad*, and yet not found more than sufficient for the purpose. That part intended for the Columna was brought from the highest portion of the forehead; circulation was, nevertheless, carried on in it, and it did not decay, and scarcely a trace was to be seen of its union with the remaining portion of the old Columna. This new method of forming the nostrils, by reflecting and uniting the flaps to the inner side of the nose, deserves our attentive consideration, as by it alone is

the potato-like appearance of the nose, caused by the gradual approximation of the new alæ, to be avoided. Lastly, the removal of a strip of skin from the nasal ridge contributed, in a great measure, to produce the very natural appearance of Mr Groth's nose. It was certainly the best nose I ever made.

I now proceed to those cases where the mutilation of the nose was not occasioned by accident, but was the result of disease.

I shall commence with the following highly important one.

#### CASE I.

DR MARTINI of Lubeck, a distinguished medical author, kindly recommended the subject of this case to me for operation. The patient had suffered considerably from syphilis, of which disease he was cured by Dr Martini, under whose care he had been, and who, at my request, kindly furnished me with the history of the case. He had likewise the goodness to send me an excellent drawing of the patient's face before he left Lubeck for Berlin, and again favoured me with a portrait of him after my successful formation of a new nose.

“Although many similar cases are to be met with, the following history of a disease,” says Dr Martini, “is not without interest, on account of the practical facts it exhibits. I have already alluded to it in a small treatise on the use of Iodine in ulcers of a syphilitic character, and I think it must prove that the venereal poison, although checked by remedies and rendered less virulent, may remain latent in the system for a long time, and shew itself under very anomalous characters. In May 1823, a merchant, thirty-five years of age, requested my advice and assistance. Ten years previously, he had been apparently cured of the venereal disease by mer-

cury, in London, under Sir William Blizard. In Bourdeaux, Paris, St. Petersburg, Lubeck and other places, chancres had re-appeared; but as they always followed coition, it is doubtful whether they were the result, or rather the continuation of the old disease thus excited by the peculiar stimulus applied, or whether at each period of copulation my unfortunate patient had contracted the disease *de novo*; be that, however, as it may, calomel and sarsaparilla never failed to restore him to health. At length his throat became affected; this, however, he told me was cured by the muriate of mercury, Dr Pollini's decoction and the fasting regimen. It is remarkable, that no disease of the skin, buboes, nodes or pains in the bones had then taken place. After an interval of six months, his throat became violently affected, and very painful superficial ulcers appeared upon the clavicle, sternum and calves of the leg. It was at this time he applied to me. Although pale and thin, he still enjoyed good health, eating, drinking and sleeping well, and quite free from diarrhœa. Guided less by the appearance of his throat than the history of the case, I determined to put him through a course of mercury. All symptoms immediately became aggravated, and I was obliged to discontinue the calomel and the carbonate of magnesia he was taking. I supposed him to be suffering from the effects of mercury, and prescribed the usual remedies in such cases, all, however, with no avail, and I judged it right to send him for change of air to the country.

“While there, I prescribed Iodine for my patient, having seen a somewhat similar case where it had been beneficially employed. The tincture of Iodine was administered according to Coindet's method, and I was delighted to find the remedy perfectly successful. In four weeks the ulcerated throat had healed, and all cuticular complaints were removed. I had, however, committed a great mistake in supposing my patient laboured under a mercurial complaint. Although he



remained free from all appearance of disease from August, 1823, to May, 1824, at which time the Uvula began to swell, and was soon destroyed, and the palate followed in an almost incredibly short period. I again tried Iodine, but with no effect; the preparations of Gold were, however, most successfully had recourse to, and by the end of the following August my patient was again restored to health.

“I now began to understand the true nature of the case, and was more than ever convinced how much the Proteus-like nature of syphilitic complaints will mislead even the most careful practitioner.

“During this Autumn and part of the Winter, I subjected my patient to a course of mercury, which he bore extremely well, and deemed himself perfectly cured; and with the exception of a few slight indispositions he enjoyed excellent health until October 1826. He then caught cold, and my suspicions were aroused by several gelatinous masses passing from his nose. These contained neither cartilage nor bone, and appeared to me to be portions of the Schneiderian membrane. The nose now began to be painful; unhealthy pus was discharged, and in a short time the nasal point fell down. From the first appearance of these symptoms I commenced with the usual remedies. My patient seemed brought to the brink of the grave; and it was not until he had taken fully three drachms of the muriate of mercury, and swallowed at least one hundred bottles of Pollini’s decoction that the ulcers healed and he began to recover. The spring of 1827 saw him in tolerable health, but with a deformed nose, and the loss of his upper incisors.

“The deformity was more ludicrous than disgusting, his profile, and the full view of his nose are accurately delineated in the accompanying drawings, Plate XI. Figures 1 and 2. I now recommended my patient to try the Pyrmont mineral waters, and since this time he has had no return of the disease; his sufferings have been alone of a moral nature. Foolish, silly people, and even mem-

bers of his own family, retreated from him in disgust, and he became exposed to so many vexations that I recommended him (June 1829) to seek the aid of Dr Dieffenbach of Berlin, and endeavour to have his disfigurement removed."

After seeing Mr T. and carefully examining the case I unhesitatingly undertook the operation; the drawings sent me by Dr Martini were very correct and will afford the reader the best idea of the deformity. The nasal bones were remaining, while the forepart of the nose, with the exception of the right ala, was destroyed, or had fallen in; of the Columna and nasal point no traces remained.

I commenced the operation by removing all points and inequalities from the stump, splitting the nose along the ridge, separating the skin from the nasal bones, and dividing all unnatural adhesions which the alæ had contracted with the neighbouring parts. The stump was now prepared to receive the flap, and the ridge of the nose furrowed for the reception of its nourishing neck.

As the patient's face was long, his eyes very prominent, his mouth large, his lips thick, and his features strongly marked, it was necessary to proportion the flap to them, and to take care that the new nose should not be too small. The forehead not appearing to me high enough to supply a flap of sufficient length, I determined to form that portion of it intended for the Columna, from the hairy scalp; and, having shaved the part, I proceeded in my usual manner. I formed the Columna, an inch broad, and one inch and a quarter long, and the flap from the forehead, intended for the point, was at its widest part, two inches broad, and two and a half inches in length; the nourishing neck was of the usual width, and the incision on one side was continued into the wound along the ridge of the nose. The wounds were united, as in other cases, by the twisted suture; they freely approximated, with the exception of a space in

the middle of the forehead about the size of a shilling. The flap exhibited no peculiar appearances during or after the operation. It was pallid, and did not evince any symptoms of swelling or inflammation, until eight hours after the operation.

Cold was applied to the forehead, and a more stimulating lotion, consisting of wine, water and a little salt, was employed for the nose. Towards evening re-action commenced, and the patient was in a high fever, which continued until the fifth day, during which time it was necessary twice to take twelve ounces of blood from the arm. In consequence of the swelling of the face and nose, leeches were applied, the stimulating lotion discontinued, and a more cooling one employed. At this period the flap had assumed a very red and glossy appearance. The first pins had been removed in four-and-twenty hours, and the remainder on the fourth and fifth days after the operation, when union appeared to have taken place in all parts, except the space already named on the forehead. The Columna was firmly attached to the upper lip, where a slight cavity had, of course, been provided for its reception.

On the eighth day all inflammatory symptoms having subsided, the patient was allowed a more generous diet, and on the fourteenth day he had so far recovered as to be permitted to leave the house. In the mean time important changes had taken place; the edges of the Columna had curled inwards, in a very favourable manner, while the new ridge had contracted to a third of its bulk, and risen considerably, and the point of the nose had become protruded forwards.

The contraction of the flap, although favourable for the appearance of the transplanted parts, was not equally so for the remains of the old *alæ*, which had been preserved; they were somewhat raised, and looked unnatural.

Three weeks after the operation I began to improve the nose. I mentioned that the edges of the new Columna

had curled inwards; they had even united to each other within the cavity, and occasioned a roundish protrusion of its external middle portion. I therefore removed from throughout its length a piece about the size and shape of a myrtle leaf, and united the wounds by three pins. By this means not only was the Columna considerably diminished in bulk, and its ball-like projection removed, but, what was of more importance, the point of the nose was pushed forwards, and had actually become pointed. Little re-action followed this operation, and in three days the wound had healed.

In consequence of the shrinking of the flap the right ala had become much wrinkled. I therefore separated it from the ridge, and re-united it about three lines lower down and nearer the point. Five pins were sufficient for the purpose; and, when union had taken place, I had the pleasure of finding that all wrinkles had disappeared, and that the ala was smooth. I next extirpated the long nourishing neck in the usual manner, and having brought the edges of the wounds together, effected a considerable improvement of the nose.

Notwithstanding the precaution of retaining a tent in the nostril, the left ala, through which ran a deep furrow or cicatrix, the result of old ulcerations, had sunk considerably. I determined to remove this furrow upon the principles already laid down (page 57) in raising sunken noses. It was accordingly cut out, but in such a manner that a greater portion was removed on the inside than on the out—in other words the removed strip was of a triangular form, with its apex towards the outer side, and its base towards the inner. I next separated, on the same principle, but in a contrary direction, the posterior part of the ala from the cheek and lip; from which parts I also removed another triangular strip, but in this instance, its base was at the outer side, and its apex at the inner. By these means I was able to re-unite the ala in an upright position, and absolutely to *dove-tail* it to the neighbouring parts.

Great inflammation ensued, and the sutures were removed on the second and third days. The wounds healed partly by suppuration, and partly by adhesion; but my object was accomplished, for the ala remained in the upright position in which I had placed it.

I next proceeded to remove the cicatrix remaining on the forehead, where a portion of the wound had healed by suppuration. It was not larger than a sixpence, and I included it between two incisions, terminating above and below in acute angles. The wounds were brought together by four needles and soon healed.

Plate XII. represents the young man when completely cured.

It was amusing to witness the gratification and happiness the successful termination of this case afforded the patient; he would stand for hours before a mirror contemplating the change that had taken place in his countenance, and took delight in exhibiting himself in public. Among the gentlemen present at these operations, I may mention Dr Weekes, of London; Drs Baum and Eckard, of Berlin; Dr Hirzchfeld, of Breman; Dr Stark, of Copenhagen, and others.

This case, which may be placed among the most successful Rhinoplastic operations, was remarkable in many points. That the patient had perfectly recovered his health under the skilful treatment of Dr Martini was much in favour of the operation; but it remained very doubtful whether a constitution that had already suffered so much, would be able to withstand so severe a shock, as it would receive. The complexion too, was fair, and the skin white and tender, circumstances not favourable to union by the First Intention, since operations are likely, in these cases, to be followed by erysipelatous inflammation. The forehead was deeply furrowed, and it was necessary to form the new Columna from the scalp. The result, however, shows that a speedy union by the First Intention may take place, even though the

skin may be otherwise predisposed, and that contrary to the generally received opinion, a furrowed brow will become smooth, and its wrinkles disappear, when placed in its new situation; indeed, I will go so far as to assert that such a circumstance is favourable. In removing the flap I was struck with its paleness, and the length of time that it preserved this was greater than I had ever remarked before. In regard to the place from whence the Columna was procured, I shall delay treating of it until we come to the formation of entire noses from the scalp. Finally I think we are justified in concluding that such an operation is attended with great danger, and that a person in bad health, or of a weak and sickly constitution may even fall a victim to it.

#### CASE II.

A. WENK, a mason from Frankfort on the Oder, twenty-seven years of age, tall and vigorous, with a blooming, healthy complexion, applied to me to remedy the most horrible and disgusting deformity of the face I ever witnessed. Plate XIII. is an accurate likeness of the individual. Even the small remains of the nose, there seen, were covered with scars, the nasal bones were gone, and a large hole was in their place; the septum and Columna were also wanting, and the neighbouring parts deeply cicatrized. To add to his misfortunes, half of the right side of the upper lip had been destroyed, the gum was exposed, and its membrane converted into a thick and tough skin. I could not doubt that all this havoc was the result of syphilis; the young man, however, asserted, with so much apparent sincerity, that he had never been infected, that I could not help believing him. He assured me it was the consequence of extensive gangrene, which had, thirteen years previously, followed some wounds on the face, caused by a fall. He was, however, in such excellent health that it appeared

to me a matter of indifference how the mutilation had been induced; and I at once undertook to remedy his deformity. I operated in the presence of Dr Rust, the Staff Surgeons and Infirmary pupils, and commenced with the upper lip. Its remains were freely detached from the alveolar process and maxillary bone, its side edges were laid bare, and then, by making an incision above and parallel to it, I was enabled to draw it down, and unite it to the corner of the mouth on the one side, and to the remaining half of the lip on the other. A flap was then separated in the usual manner; the Columna was taken from the scalp, and made an inch broad. The nasal ridge having been split, I placed the flap within the fissure, in such a manner that its broadest portion covered the anterior and middle portions of the nose. The Columna was united by three sutures to the upper lip, and it required six to secure the wound on the forehead. The patient was put to bed: for the new nose I employed tepid applications, and cold lotions were used for the forehead.

He slept but little that night, and on the second day so much inflammation had appeared that it was necessary to bleed him copiously. On the third day the Columna and point assumed a bluish appearance; gangrene had taken place on the fifth, and on the seventh these portions were detached.

In many places the wounds had not united; in a few days, however, they had healed, with the exception of a fissure in the upper lip, which at a subsequent period I re-united.

The appearance of the patient was now as is shewn in Plate XIV. A great disfigurement had been removed, but he still wanted a Columna and the point of his nose. These I wished to form from the left cheek; but, deaf to all my entreaties, the patient resisted, and would not permit me even to remove the long neck of the flap on the nasal ridge. He left the Infirmary after a residence

of three weeks within its walls, having been altogether nearly two months under my care.

This case points out to the inexperienced Surgeon, that he may be deceived by appearances; and that he must not judge of a patient's health, and his capability of undergoing an operation by a blooming countenance. No one could appear more healthy than the individual in question, and yet gangrene was induced, and scarcely any portion of the wounds united by the First Intention. I think many people are so constituted that their wounds do not heal by adhesion; but in such I have observed suppuration to be much shorter than usual in its progress.

### CASE III.

DR H. a native of Silesia, thirty-six years of age, was one of those unfortunate individuals, who, having lost their nose, spread disgust and horror wherever they appear. Some years before I saw him he had been affected with syphilis; and, the nature of his avocations obliging him frequently to change his place of residence, he had been under the care both of medical men and empirics, but although all sorts of mercurial preparations had been administered to him, he had never undergone a regular course of medicine; it was for this purpose he came to Berlin, and entered himself at the Clinicum of the University. One course, however, was not sufficient, and before the disease could be cured, he went through two regular courses of mercury, and in the meantime lost his nose. In profile he was not unlike a death's head, for scarce any nasal prominence was visible; the bones, septum and Columna were wanting, and the soft parts had fallen in. Where the point of the nose should have been, a portion of skin hung down about the thickness of a crow's quill.



Plate XV. represents this individual before the operation. The width of the brow, with the abundant material contained in its many wrinkles, left no doubt of my being able to unite the wounds after the excision of a flap fully two inches broad; and I felt no less certain that, by a judicious use of the remains of the old nose, I could give a good and pleasing form to the new one.

Dr H. having recovered his health, I commenced the operation, assisted by Drs Steinruck, Baum, Tourtual and Stark. Having split the remains of the nose throughout its length, and cut away its edges, I separated it on each side from the maxillary bones and skin of the cheeks. A raw surface was then made in the upper lip for the reception of the new Columna, which, with the flap and nourishing neck, I proceeded to form in the manner already described. The forehead being high, the scalp was not trespassed upon. The Columna was one inch, the portion of the flap intended for the fore part of the nose was two inches, and the nourishing neck three quarters of an inch in their broadest parts. The right side of the incision was continued into that made along the ridge of the sunken nose. The bleeding from the forehead was so great, that I permitted the flap to hang down, a red, curled up and shapeless piece of flesh, while I brought the wounds together. All this time the flap bled freely, and much blood spouted in a very singular way from a small artery that ran along its right side. A great many pins were necessary to secure it in its proper place, but three sufficed to unite the new Columna to the upper lip. The patient was carried to bed, and cold applied to the face and forehead. The flap began to swell almost immediately after the operation, and was of a deep red colour. Blood flowed from its lower edge, and a considerable quantity still spouted, but more slowly, from the artery already mentioned, over which I now applied slight pressure by means of a small piece of sponge. Five hours after the operation the flap was more swollen, and had become of a deep

blue colour ; more blood evidently flowed into it than could find egress ; I therefore removed the sponge, and the artery again spouted forth in a copious stream. The beneficial effects of this were soon apparent ; the swelling subsided, the blue colour disappeared, the flap became red and afterwards pale, and was much cooler. The assistant who kept watch at the patient's side, was ordered to regulate this flow of blood according to circumstances.

Plate XVI. exhibits the patient three days after the operation.

Cold applications and a low diet had been rigorously persevered in ; and, the bleeding from the flap had frequently been renewed on the first day, yet notwithstanding I was obliged, on the second and fourth evenings, again to bleed the flap to the extent of twelve ounces, and, on the third and fifth days, to apply twenty leeches to the temples.

My patient was in great danger—he was comatose, and violent inflammation and swelling of the face and head had come on—yet still the wounds had united. On the third and fourth days I extracted the pins from the flap, and on the fifth and sixth removed those of the forehead, in the middle of which the edges of the wounds slightly retracted. Blood followed the removal of each pin ; the bleeding was encouraged with the happiest results, and on the eighth day all inflammation had disappeared, and the swelling was subsiding. The flap and Columna had contracted, and thereby acquired a better shape, and their unattached edges had begun to curl inwards, giving a better form to the nostrils : the consequences of this contracting of the flap were, that, the ridge of the nose became more prominent, and the Columna, instead of hanging loose and flabby, now stood well out from the upper lip. The wound on the forehead had healed, and no further mark remained than a soft, thread-like, insignificant cicatrix. The shrivelling of the flap, however, beneficial as it was to the upper

parts of the nose, and the Columna, was not equally so to the sides, for the alæ which had been raised, appeared wrinkled and drawn up at the line of union. I had been prepared for this by the case already related; and when operating, had hoped to avoid it by taking care to stretch, as it were, the alæ and carefully to adapt them to the flap. Yet with all these precautions I still formed my flap, at this part, too small: for, when it became united to the remains of the alæ, and underwent its subsequent contraction, it, of course, pulled them up with it, and produced the appearance above-mentioned. Another unpleasant circumstance was, that the left ala gradually sunk or crept in under the fleshy round edge of the flap. The right ala stood well up.

Three weeks after the operation I began to improve the appearance of the nose, by removing from its length a strip of about one inch long, and the sixth of an inch wide: by this means, when the wounds had united, the roundish or potato-like appearance of the nose was done away with, and one more natural produced. A cicatrix always contracts and becomes smaller than the original wound; and thus, in this instance, the point of the nose was raised. On the same principle also—the Columna being too wide—I removed a *round* portion from its centre, and bringing its edges lengthwise together, obtained a wound twice as long as the width of the original one, without any further loss of substance. Had I merely cut a long strip from the Columna, the wound, contracting during the process of healing, would have depressed the point; instead of which, it was pushed still further out, the breadth of the Columna was diminished, and its solidity increased. Eight days from this time I removed the prominence between the eyebrows, caused by the necessary twisting of the flap; the wounds did not unite by adhesion, considerable inflammation and suppuration ensued, but in a fortnight the parts had healed over.

Shortly afterwards I separated the right ala from its

attachment to the flap, removed the cicatrix, and united it as in a former case, nearer the point of the nose, and with similar success. I found much greater difficulty in remedying the defects on the left side of the nose. At length, however, I succeeded by forming two converging incisions, nearly a quarter of an inch from each other, between the ala and cheek. I next removed the forepart of the ala, as on the other side, from the flap, cutting obliquely inwards. The sunken ala could now be raised, I united it like the opposite one, on the one side, nearer the point, and on the other, to the cheek *over* the strip of skin that was formed, and which thus made a sort of foundation for it. The wounds healed by the First Intention.

In conclusion I enlarged and improved the nostrils by excising small flaps from the Columna, and reflecting and uniting them, as already described, within the nasal cavity.

The appearance of the gentleman when cured, is exhibited in Plate XVII and, if I might estimate my success by the gratitude of my patient, I should be fully justified in supposing I had formed a nose not unworthy of the Pythian Apollo.

This case was highly useful to me. Most Surgeons hold that any hemorrhage from the flap should be stopped, and Dr Griefe says a bleeding artery must be tied, in opposition to this, I permitted the hemorrhage to go on for several days, and even encouraged it, whenever I observed the blue colour of the flap, which appeared to me to be the consequence of too great a quantity of blood flowing into it. We are told, too, to employ hot and irritating applications, in order to excite a flow of blood in the flap. In this case there was no want of arterial activity, but I did not well see how the blood would *circulate through* the flap, since I could not expect that the veins could return it. Physiologists must decide the question. My ideas may be too me-

chanical, but I conceived that more blood flowed into the flap than could be returned from it ; and therefore deemed it necessary to give it egress, and to moderate its quantity by general and local bleedings, cold applications, and a rigorous antiphlogistic diet, in which I persevered until union had taken place between the parts, and circulation become freely established.\* Had I known this fact before, many cases hereafter to be detailed would have terminated more favourably, and I should not have lost by gangrene—the consequence of over-distention—portions of the newly formed noses. On this subject I shall again speak in the chapter of general observations, which will conclude the volume.

\* From the deep *blue* colour which the flap usually acquires, immediately after its partial separation from the subjacent parts, it is obvious that the capillary arteries which it contains, acting under the strong mechanical stimulus to which they have been subjected, have forced the greater part of the blood into the corresponding veins, in which it becomes for some time accumulated. As however, the blood slowly dribbles away, in the course of circulation, by the veins, while the continued constriction of their capillary branches prevents its ingress in an equal quantity by the arteries, the flap becomes in its central parts of a *pale* colour, its edges alone, remaining blue, owing to many of the larger veins which should have carried off the blood from them having been divided. In a short time however, this preternatural constriction of the capillary arteries is followed by a proportional collapse—that is to say Inflammation with its attendant *redness*, swelling, heat and pain is established. Dieffenbach is perhaps mistaken in supposing that either in this, or any other case of inflammation, more blood is carried to the inflamed part by the arteries, than is returned by the veins ; but he appears to be quite right, not only in rejecting all means calculated to increase an accumulation of blood, which is too great already, but in favouring its abstraction from the part, wherever circumstances appear to demand it.—TRANSLATOR.

## CHAPTER VI.

### ON THE RESTORATION OF THE NOSE FROM THE SCALP.

NOTWITHSTANDING our best endeavours, in repairing noses from the skin of the brow, some cicatrix often remains. When the whole nose has been destroyed, we are obliged to remove a flap nearly three inches wide in its broadest part; and in this case no stretching of the skin—no division of it at the temples—will enable us to bring the edges of the wound together, and it becomes impossible to avoid a very considerable and disfiguring scar. Certainly the cicatrix will contract in time, but still we cannot obviate it, nor prevent the disagreeable appearance it always occasions. These considerations, and the almost cartilaginous texture of the scalp, suggested to me the possibility of forming the nose entirely from the latter. I was doubtful, however, whether so large a portion of scalp as would be required, would be sufficiently nourished through the slender neck of skin from the forehead; and whether, even should it succeed, hair would not continue to grow upon it. I knew that noses, formed from the arm, often became covered with hair, which was removed with difficulty; and my medical friends, to whom I mentioned the subject, assured me this would also be the case, and in a far greater degree, when the nose was formed from the scalp. I did not, however, think it improbable that with a change of

situation, a change of properties would also take place. We know how great is the change that occurs in the texture of a transplanted portion of skin, it being frequently converted, from a thin and ductile integument, into a firm, solid and compact mass; and I argued that the nature of the stimulus that produced hairs would also be changed, and no further growth take place.

My ideas on experiment proved to be correct. In T.'s case I formed the Columna from the scalp, and in fourteen days it lost its hair, which did not re-appear. I had now experience in my favour, and did not hesitate, as in the following case, to form the whole nose from the scalp.

#### CASE I.

A GIRL ten years of age, the daughter of a peasant of Wilmsdorf, had been a resident in the Infirmary for some years. Her appearance was truly hideous, Scrofula having destroyed, not only every vestige of a nose, but the soft and hard palates also, so that the cavities of the nose and mouth were united into one deep and frightful cavern.

Plate XVIII. Figure I, represents the child.

I commenced the operation by removing all inequalities from the edges of the nasal cavity, and dissecting the skin all round, from the bones, to a slight extent. A small portion of the old Columna was raised, and prepared to be attached to the one to be provided. The scalp being shaved, the flap was next formed from it of the necessary size, and separated from the bone, a nourishing medium being obtained of an inch broad from the forehead. The flap was then turned, and fastened to the face by six pins on each side, and two more at the union of the old with the new Columna. The tumour caused by the twist was situated at the inner angle of the left eye. Five pins were required to bring together the

edges of the wound on the forehead. That on the scalp I intended to heal by granulation, and applied lint with cold applications to it. As the new nose appeared very cold and pale, I applied warm wine and water to it; in the evening it was much swollen, and in consequence of the greater quantity of blood flowing into it than could find egress, and of the roots of the hairs, it had assumed a bluish aspect.

*Second day.*—The child had passed a good night. The edges of the wounds were closely approximated, but the swelling was still considerable. I removed four pins; blood followed as if from leech bites, and the bleeding was continued and encouraged by tepid water.

*Third day.*—All sutures were withdrawn. The nose looked well, was united in all points, and not so much charged, or gorged with blood as to threaten gangrene.

On the eighth day all swelling had abated, and the wounds had firmly united. The nose was covered with short, strong hairs; the wound on the forehead had united, and that on the scalp was granulating freely.

Plate XVIII. Figure 2, represents the patient at this period.

In six weeks the wound on the head had healed, and the flap acquired a better form and a considerable degree of solidity; any hairs that appeared were plucked out.

The nose looked best upon the left side, the right having contracted and presented a deep furrow; this I attempted to fill up with a portion of skin obtained from the twisted part of the flap, but did not succeed; the wound, however, granulated, the furrow thereby was considerably lessened, and the nose improved, which at a later period was still further effected by excising a narrow strip from the ridge throughout its length, and extirpating the lower part of the cicatrix on the forehead. The wounds healed kindly by the First Intention. All further improvement was prevented by the girl leaving the Infirmary, at which time Plate XVIII. Figure 5, was an exact delineation of her countenance.



## CASE II.

CAROLINE ROCKL, aged twenty-two, was received on the twelfth June 1829 into La Charité, the principal Infirmary at Berlin. In consequence of Scrofula, the whole cartilaginous portion of the nose was destroyed, so much so that the nasal bones projected with a sharp ridge. The upper lip both inside and out, was covered with ulcerations, and so much contracted in the middle, as to appear not unlike a hare lip. Plate XIX. represents the patient. Before operating it became necessary to heal the ulcerations, and to improve the general health of the girl. She therefore, underwent a course of medicine, and in a few weeks I undertook the operation, at which were present President Rust, and Drs Kothe, Ech, and Chrichton of St. Petersburg. The forepart of the cranium being shaved, I made the incisions on the old nose, necessary for the reception of the flap, which was formed in the usual manner, the Columna being one inch and the nourishing strip from the forehead, three quarters of an inch wide. The flap, being turned, was placed in the furrow prepared for it over the nasal bones, and fastened to the cheek and upper lip by sixteen pins. Seven pins intimately united the wound on the brow; and that on the scalp, which was several inches in extent, was covered with lint. Quills were placed in the nostrils, and cold applied to the nose and brow.

For some hours after the operation the nose was pale, but towards evening, re-action having taken place, it became much swollen. I bled the patient to the extent of ten ounces. During the following three days little change had taken place, except in the colour of the nose, which becoming somewhat bluish, I was induced to apply sixteen leeches around it. On the fourth day she was again bled to ten ounces, and a slightly stimulating lotion applied to the nose. On the fifth day the lower

part of the flap was still darker and more inflamed. Ten leeches were applied, but gangrene could not be prevented, and the lower portion of the flap sloughed off. The brow had healed without any cicatrix, and the wound on the scalp was contracting and granulating.

Plate XX. Figure 1, represents the patient three weeks after the operation, the nose consisting merely of a triangular flap, broad below and terminating in a peg-like form at the nasal process of the frontal bone. This peg-like appendage, necessarily caused by twisting the flap, I intended should form the point of the nose, and supply the place of that which had been destroyed by gangrene. This second operation was performed in the same manner as the former, but on a smaller scale. The tumour was carefully dissected on each side, or in other words a flap was formed of it—from the nose itself a nourishing medium was obtained—the whole was turned round, the long neck inserted into a fissure prepared for it, and the new point fixed in the proposed situation. All the wounds were united by pins, as in the other operations. The point projected to my entire satisfaction, and the patient's appearance was considerably improved. The point which was at first pale and cold soon became red and swollen. Inflammation followed, and twenty leeches were applied round the part. Slight gangrene took place at the extremity, and a portion about the size of a pea was separated: the hole however, soon filled up by granulations.

A small furrow or cavity still remained on the nose, just above the newly formed point. This I hoped to have filled up by the twist that was again formed in obtaining the new point, but I did not succeed, as gangrene took place; the furrow subsequently filled up by granulations. A month after the second operation the girl appeared as in Plate XX. Figure 2.

Some inconvenience is still experienced by the tendency of the side walls of the new nose to grow together.

This, however, I hope to obviate at a future period, by cutting small flaps from the lip, introducing and healing them within the nostrils, sinking them deeply into their sides, and thus obtaining a greater degree of firmness for them; at the same time I hope to form a Columna also, from the upper lip. At present the girl declines to submit to any further operation.

### CASE III.

C. SCHNEIDER, a tanner, aged forty-one, a tall and robust man presented himself at La Charité to undergo an operation for the restoration of his nose, of which a severe attack of syphilis had deprived him.

Plate XXI. represents him. The whole nose was lost, as also the lower half of the nasal bones. The large cavity was bounded by red and indurated skin, which scantily covered the bones, except at the lower part, where the lip, in consequence of ulceration, had contracted, turned up and become united with the nasal cavity. This distortion of the mouth considerably increased the horrible appearance of this unfortunate individual, which was not lessened by the remains of old ulcerations upon the forehead and around the mouth and nasal cavity.

Although the patient was robust, in good health, and quite free from all disease, yet the indurated state of the parts, and the numerous cicatrices which every where intersected each other, rendered it probable that the operation would be unsuccessful; nevertheless, at the earnest solicitation of the man, I determined to undertake it.

In consequence of the entire loss of the nose, it was necessary to procure a very large flap, which, as in the two former cases, was obtained from the scalp. I commenced the operation by making incisions round the

cavity for the reception of the flap, these I formed at some distance from the margin, encroaching upon the cheek, where I could obtain a firm and healthy portion of skin to which the flap might be united; and, which was now very skilfully formed in the usual way, by Staff-Surgeon Grossheim. Being turned round, it was fixed by thirty-two pins in the furrows previously prepared to receive it. Three twisted sutures united the Columna to the lip, and four pins brought the edges of the wound on the forehead intimately into contact. The large wound on the scalp was covered with pledgets of lint. The patient, who had most heroically borne the operation, was now carried to bed; cold was applied to his head; and, as the new nose was icy cold and pale, a lotion of wine and tepid water was used for it. In a few hours the nose had swollen and become warm and red. A small branch of the temporal artery had been cut, the bleeding from which was not checked until near midnight. The patient passed a very sleepless night.

The following morning considerable re-action had taken place. The pulse was full, hard and quick, and the whole face, but especially the mouth, eyelids and lips, were greatly swollen. In most places union had taken place, and I therefore extracted the greater number of the pins. Towards evening I took a pound and a half of blood from the arm.

The second night passed as sleeplessly as the first. Notwithstanding the constant cold applications, the patient complained of an intolerable burning pain of the head, and I found him next morning suffering more than on the preceding day, labouring—he was addicted to spirits—under delirium tremens. He was ordered brandy, administered in small quantities. Though the nose was greatly swollen, it was still approximated to the neighbouring parts, and I applied twenty-four leeches around it. Plate XXII. is a very faithful representation of the patient on this day.

During the following days, the delirium tremens hav-

ing disappeared, and the fever abated, it became necessary to administer a more generous diet.

The wound of the scalp and of the brow—the edges of which had separated—were granulating freely, the swelling had decreased, and union by the First Intention taken place, except at the lower part of the new Columna, where a slight degree of gangrene had occurred. At the line of junction on the left side of the nose a very inconsiderable suppurating furrow appeared.

On the ninth day the nose, although swollen and inflamed, had much improved in appearance, its sides were more drawn together and the ridge in consequence become prominent.

On the tenth, all inflammatory symptoms had disappeared, and the whole nose seemed healthy and in a highly favourable way. The hairs were easily removed with small tweezers.

Although the operation appeared to be about to terminate successfully, the general health of the patient was greatly disturbed; a distressing cough, dyspnoea and considerable diaphoresis proclaimed the lungs affected, and the wounds on the scalp and forehead, soon began to assume a sluggish, flabby aspect. It were needless to follow this case through all the stages of intermittent and continued fevers which followed; a large abscess formed in the axilla, and on the eighth of September the patient expired. The dissection exhibited considerable adhesions between the pleuræ. The lungs themselves were œdematous, being actually gorged with a quantity of brownish-red fluid of a very disagreeable odour. The bronchi were ulcerated, and the heart enlarged, withered, pale, soft and empty.

The head was given to Professor Schlemm.

## CHAPTER VII.

### METHOD OF REMOVING POLYPI OR OTHER TUMOURS FROM THE NOSE.

To effect the removal of tumours from the nose I split up the ala. This method greatly facilitates the operation, and enables the Surgeon easily to arrive at the seat of the disease.

The operation is spoken of by Hippocrates, but I am not aware that it has been practised, except by myself, in modern times. When the ala is divided as far as the margin of the nasal bones, the Surgeon sees freely into the cavity of the nose, and can readily apply his instruments to any point. Should both nostrils be affected, I not only divide the alæ, but also the Columna and septum, and turn back the nose during the operation. The wounds are readily united by the twisted suture, and generally heal in a few days. The two following cases are the most interesting of the many that have come under my observation. In both I performed the operation.

#### CASE I.

Mrs ASMUS, forty-nine years of age, a native of Mentz, about three years previously observed that the air passed through her nose with some difficulty. She suffered

but little inconvenience, and deemed it proceeded from cold. Soon afterwards, however, she perceived a small tumour which rapidly increased in size, hanging from the nostril. It was of a black colour and spongy texture, and covered with a crust which frequently fell off, exhibiting the dark, moist and bleeding surface of the tumour. The patient having applied in vain to several Surgeons for relief, at length entered the Clinical Hospital of von Gräefe, where, according to Weinhold's method, she was put under a course of mercury. A profuse salivation followed the exhibition of the fourth dose of medicine, and the course was discontinued. The tumour was frequently pencilled with tincture of opium.

Having recovered from the salivation, an operation was attempted; but so considerable a hemorrhage accompanied the application of the knife, that it was abandoned, and the patient informed that it was impossible to remove the tumour. She accordingly left the institution, and wandered about from one Surgeon to another, trying many remedies but unfortunately receiving no relief.

In the meantime the tumour had increased in size and frequently bled considerably; when she presented herself at La Charité, the point of the nose appeared as if a truffle hung from it, as in Plate XXIII. Figure 1.

On a closer examination, the tumour appeared to arise from the left nostril, and pressed so much upon the septum, that the right was nearly closed; from the same cause the nasal bones had become thin and yielding, and the left ala was pushed up and partly destroyed. The surface of the tumour both in colour and appearance was very like a truffle, having similar inequalities upon it. It was partly covered with crusts which fell off occasionally. It felt elastic and easily bled. I deemed it a genuine fungus hæmatodes; and determined to remove it by dividing the nose throughout its whole extent, cutting through the thin and attenuated bones,

and separating the sides of the nose in order the more easily to dissect out the whole mass. President Rust witnessed the operation, which was performed as proposed. The sides being drawn well asunder, I introduced a very long and straight pair of polypus forceps, carried them far up, and seizing the mass, fortunately drew it completely out. After its removal two fingers could easily be introduced into the nostril, and the septum was so much pressed to the side, that it appeared wanting. The cavity was lined with a healthy membrane, except at the points of attachment where it had a blackish appearance. These diseased parts being removed, the nose was re-united by means of six needles. Little deformity was visible except at the left ala, a portion of which had been destroyed. On the third day union had taken place, and in the course of a fortnight the woman was discharged cured. The deformity of the left ala had also been removed by excising a small strip from it and uniting the edges of the wound.

Plate XXIII. Figure 2, represents the patient at this period.

The tumour was composed of two portions, one considerably darker than the other, which it surrounded, and was not unlike the cortical substance of the brain, but stronger and almost fibrous; the portion exposed to the air was more solid than the rest. The whole was tuberculated and cellular, furrowed externally, and containing a thick slimy fluid, not unlike the pigmentum nigrum of the eye, and capable of communicating a brown colour to several pounds of water. Its characters agree with the Melanosis of Laennec and others. Meckel thinks these tumours identical with Medullary Sarcoma, in which this brown pigment has been deposited. Allan Burns, who distinguishes between Fungus hæmatodes, and Medullary Sarcoma, describes the former as similar to the tumour now before us, with this difference, that the soft brain-like mass he mentions exhibited itself, in



the present case, as the slimy dark pigment-like contents of the cells.\*

Plate XXIV. exhibits the tumour.

#### CASE II.

A young person of the name of Ludemann, twenty-two years of age, was frightfully disfigured in consequence of nasal Polypi. The nose was flattened, and the eyes were protruded, and become amaurotic.

This young man had been operated on, unsuccessfully in the Berlin Clinical Hospital. I undertook to relieve him, and performed the operation in presence of President Rust and Staff-Surgeon Funk.

The two alæ, Columna and septum being divided, as far up as the nasal bones, and the forepart of the nose turned back, the whole mass was easily removed, by means of the Polypus forceps and scalpel. Bleeding ceased upon the injection of cold water. Ten sutures united the wound, which readily healed by the First Intention. The patient was soon dismissed cured, but not exempted from a return of the complaint.

\* The tumour above described seems to correspond much better with the characters of the Melanosis of Laennec, Bayle, Bischat and others, than of the encephaloid tumour of these authors. The former was the occult *black* cancer, as the later was the occult *soft* cancer of the ancients; both being thus distinguished from the occult *hard* cancer, or scirrhus. Before the time of Laennec the encephaloid tumour had received several other appellations: it was the Medullary, and perhaps also the Mammary Sarcoma of Abernethy, (Surgical Observations, 1797); the Spongoid Inflammation of Burns, (On Inflammation, 1800); the Fungus Hæmatodes of Hey, (Practical Observations, 1803), and Wardrop, (On Fungus Hæmatodes, 1809); and, perhaps also, as occurring in the Osseous Tissue, the Exostosis Steatomatodes, the Osteo-Steatoma, and the Osteo-Sarcosis of other surgical writers. Contrary to the opinion of Meckel, it seems to be quite distinct from Melanosis; and, to that of Burns, closely allied to, if not identical with Medullary Sarcoma.

—TRANSLATOR.

## CHAPTER VIII.

### GENERAL REMARKS ON RHINOPLASTIC OPERATIONS.

THE preceding cases and observations relate to almost the most interesting part of our Profession; and the phenomena detailed are highly calculated to fill us with surprize, and with admiration of that Great Power, who has so constituted us, and ordained the circumstances by which we are governed, that parts which have been even destroyed may be restored, and the beauty of the human form preserved, in a great measure, uninjured and complete.

Wonderful as is the facility with which divided textures, when brought into contact, will re-unite, it is still more astonishing, though not less true, that individual parts of the human body, when removed from the situation they originally occupied, are capable of entering into new relations, and of accommodating themselves to the circumstances in which they are placed. The knowledge of these facts has greatly facilitated the progress and operations of Surgery; but still that department of it now more particular under consideration; namely, the formation and restoration of portions of the human face, is yet almost as a closed book. What has hitherto been effected in this branch of science can be regarded only as the stealthy and uncertain steps of one endeavouring to attain, with a very inadequate knowledge of

the means, an object with which he is unacquainted. Those who believe that because some few noses have been formed, the art is complete, and the science brought to its utmost state of perfection, are indeed deceived; my experience and the increased knowledge which every attempt brings with it, convinces me how little we absolutely do know, and that what we have yet done falls as far short of perfection, as the rude and untutored chiselling of the Tyro, does of the master pieces of Canova.

In the Rhinoplastic art, measurements will avail but little; a mechanical and manipulative dexterity is indeed indispensable, but if we depend alone on it, we shall fail in our endeavours. Our chief study must be those peculiar changes which transplanted parts undergo; and upon them must we principally rest our doctrines of formation and construction.

In the cases described in the former part of this work, I have endeavoured to confine myself to the more important points, and to omit or hastily pass over all that was familiar or unimportant—a method which, I think, it would be well if other writers followed, and one to which I shall adhere in the following pages, where I shall allude, not only to the transplantation of parts in which a nourishing bridge or communicating medium has been preserved—the only sure method—but also to those cases in which parts entirely separated from the body have been re-united to it—a subject not only of much interest, but of great importance.

We possess a multitude of cases of this kind: John Hunter's experiment of engrafting a newly extracted tooth on the comb of a cock; that of Machaelis', who introduced a cock's testicle into the abdomen of a hen, and many similar circumstances have acquired an extended celebrity; indeed Surgery is rich in the history of singular and anomalous cases, in which fingers, noses, ears and other portions of the body, detached from it by accident or design, have been re-united after remaining a considerable time without any connection with

it.\* In examining these cases—and it would be well if the histories of them were collected into a small work on the subject—we find that the parts which have been restored are chiefly the skin with its horny appendages; the feathers, claws, spurs and crests of birds, and the beards of animals; the teeth, and the prominent points of the human body, as the nose, ears, fingers, &c.

Long before I became acquainted with the works of Demetrius, on the transplantation of feathers, I had made several experiments on the same subject, and given some account of them in the fifth volume of von Gräfe's and Walther's Journal. When I introduced, in place of a feather which I had previously plucked out, another and a very young one, in which the pluma was still encircled by its horny sheath, and the gelatinous contents of the quill not yet dried into the pith, I found it readily took root, grew and acquired some developement, although it never reached a perfect state. Some slight inflammation always followed, which, when it terminated in suppuration, always caused the newly transplanted feather to fall out, as indeed it often did without any suppuration; and when it remained in the situation in which it had been placed, it was always some time before they began to grow and increase in size.

Hairs, especially those of the beard also, sometimes took root in small wounds or punctures made for their reception in the skin of men, birds, and quadrupeds. The appearances accompanying these experiments were much the same as those of the transplanted feathers; they were however, generally less successful, and, out of a great many hairs, it often happened that only one took root. I never observed any alteration in the colour and general appearance of such transplanted parts. Some years ago Mr Dzondi succeeded in transplanting lashes to a newly formed eye-lid, and Wiesemann's work contains much information on this subject.

\* See Introduction, p. 13.

Numerous and well conducted experiments have been made upon the transplantation of the spurs of cocks.\* When that of a very young bird is removed to its comb, and well secured in a small wound made for its reception, it unites to it by adhesion, soon begins to grow, and sometimes attains so considerable a size, that Baronis saw some become in the course of a few years nearly five inches long. In one case the spur is said to have grown to the length of nine inches.† Duhamel found, on examining these spurs, the base of the horn surrounded by a cartilaginous ring, under which was a kind of ligamentous capsular hoop, from which proceeded several tendinous fibres downwards towards the bones of the head. These tendons being divided, the horn could easily be inclined forwards, and exhibited a slight protuberance on the skull, of a spongy texture and covered with periosteum. The investigations of Hunter and Baronis fully corroborate this statement. The latter found that although the number of these ligaments constantly differed in the many specimens he dissected, yet they were never altogether wanting. The capsular ligament, by which the spur was articulated to the crest, was always present and freely supplied with blood. In like manner I have frequently transplanted the claws of pigeons, introducing them into a spot from which a feather had been plucked. They generally took root readily, and grew much beyond their natural size.

Teeth have frequently been transplanted; decayed teeth having been extracted, and sound ones, recently taken from another individual, inserted in the vacant spaces. It is necessary that the new tooth be as nearly as possible of the same size as the diseased one. This, however, is by no means a new operation; Abulcasis speaks of it; Ambrose Paré mentions an old lady who thus acquired the teeth of a young person; and we meet with many such cases in Surgical works. No one

\* Duhamel. Hunter on the Blood. Baronius, &c.

† Museum Wonnianum, Lib. III. cap. 18.

denies that transplanted teeth frequently obtain a firm position in the jaw and gum; but many doubt whether they grow and are nourished as original teeth, maintaining they are merely mechanically held in their situation by the pressure of the bone and gum. Richerand is of this opinion;\* and Fauchard† and Bourdet‡ assert that the old teeth, when introduced in the same manner, differ only in colour from a recent tooth. Many experiments, however, most satisfactorily prove, that the newly transplanted tooth does actually acquire an organized connection with the neighbouring parts. ||

Wiesemann extracted the second incisor from the under jaw of a dog, and two minutes afterwards replaced it in its former situation, connecting it by threads to the

\* Richerand. *Nosographie Chirurgicale*, Ed. 4. Paris 1815. Tom. 1, p. 8—9. aa. O. Tom. 3. p. 279—280.

† *Chirurgien Dentiste*, Paris 1728.

‡ *Recherches et Observations sur toutes les part de l'art de Dentiste*. Paris 1757, vol. 2.

|| I cannot here refrain from repeating the observations on this subject of Mr Bell of London, the author of a work upon the teeth, and undoubtedly one of the most scientific and practical dentists of the present day, either at home or abroad. "There appears," says this gentleman at page 118, "primâ facie, to be some ground for apprehension, that infectious diseases may be communicated by this operation, and on this account it may with great propriety be deprecated, even were it in every other respect perfectly successful and unobjectionable, which, however, is far from being true. Many cases of severe, and not a few of even fatal results are on record, from a consideration of which I cannot avoid denouncing the operation as dangerous, and, in the present state of our information, the operator who performs it is either grossly ignorant or unprincipled. In addition to the objection of possible infection, a tooth transferred from one socket to another, cannot be expected to fit perfectly into its new situation; and from the inaptitude of the root of the tooth to the alveolar cavity, as well as from the injury necessarily done to the periosteum by the extraction of the former, and the force requisite in replacing the new one, a living and healthy union is not to be anticipated; and we find, in fact, that a tooth thus circumstanced, speedily shews itself to be the subject of necrosis, and exhibits, in the highest degree, every symptom that characterizes that affection."—TRANSLATOR.

neighbouring teeth. In seven weeks from this time he killed and injected the animal, and found that although still loose in the jaw, it had acquired vascular connections, a large artery penetrating it and dividing into two branches. Several dentists have successfully transplanted teeth; and Mr Franz of Berlin has published an account of his operations. He frequently extracted incisors that caused pain, and re-instated them with success in their original situations. If he found an opening in the tooth, he filled it with lead; and when the root was decayed, he filed away the morbid portion, removing thus the lower part of the fang, and yet the tooth soon became firmly fixed in its place. \*

From these facts, I think we may conclude that teeth will preserve their vitality for some time after being removed from the body; and that when replaced in situ, they will again unite with it. They have this peculiarity, that after transplantation they neither assume another form, nor become larger or stronger, as we have observed takes place in other textures, particularly the spurs and claws of birds. †

\* This plan was first proposed by Mr Fox, who invariably found—and it is to be wished that all writers were conscientious enough to detail their unsuccessful cases—that it was followed by inflammation of the periosteum of the alveolus, sponginess, swelling and tenderness of the gums, and, in short, all the circumstances which attend necrosis. It is an operation that should never be attempted: and, as Mr Bell justly observes, the recording of such cases as successful, not only bespeaks the object and motive of publication to be disgraceful and self-interested, but leads often to the most erroneous conclusions, and to the most fatal and destructive results.—TRANSLATOR.

† It is very questionable whether any one of the Tissues hitherto mentioned by our author—feathers, hairs, cock's spurs, pigeon's claws, and teeth—as capable, after having been removed, of contracting organized connections with the parts into which they are inserted, really have at any time, such connections with the Tissues with which they are in contact. With respect to all, except the last, they are pretty certainly only modifications of the rete mucosum; and, as such, merely inorganic appendages to the Dermoid

We possess but few observations upon the transplantation of bone. We often find, in comminuted fractures, that portions, completely separated from the shaft of the bone, do not exfoliate, but re-unite with it; and, in like manner, I have met with a case in which, from a violent sabre wound on the head, a portion of the outer table of the skull, an inch and a half in circumference, was separated with the scalp: it was not removed, and soon re-united with the skull.

I am acquainted with no instance of an intentional transplantation of bone, except a very improbable case related by a monk named Kraawinkel, in the time of Job van Mekern. A person of some importance, in consequence of a broad sword wound, lost a large portion of his skull; a surgeon supplied the loss by a simi-

Tissue, by which they are continually renewed from their base, or pushed outward by new depositions, so that they are vulgarly said to *grow*. And in the same relation as these organs stand to the Dermoid Tissue, appear to stand the teeth in relation to the Mucous—so nearly allied, in numerous other respects, to the Dermoid—except that it is only in certain animals, or under certain peculiar circumstances, that these are renewed. It was indeed formerly the practice, as by F. Sylvius, Glisson and Malpighi, to describe the hairs and nails as kinds of Parasitical plants; but such a comparison, though pretty enough, affords no illustration of their nature, or rather makes them as perfectly organized as any other part of the body—and accordingly Fontana, Mascagni, Gaultier and others have endeavoured to demonstrate in them all the requisites of organization; but their conclusions have not been generally adopted. In like manner it was long the custom of teachers of anatomy to speak of the teeth as a part of the skeleton, implying thus their organic structure; but this practice, since the observations of Bonn, Walther, Lavagna, Serres, Mayer, Heusenjer and Geoffroy St Hilaire, on the many points of dissimilarity in teeth and bones, on the one hand, and on the many points of analogy in teeth and hair and nails, on the other, has been almost universally discontinued. Now that such organs when removed from one part and inserted into another, may become firmly embraced by the latter, and even *appear* to grow in their new nidus, I do not mean to deny—indeed I have already alluded to some of these facts in the introduction—but that they afford a good example of organized connections I cannot so readily admit.—TRANSLATOR.



lar portion of bone taken from the skull of a dog, and the experiment is said to have succeeded perfectly.\*

Several very interesting experiments, however, have been made by Merrem† and by Walther,‡ on replacing pieces of bone removed by the trepan, the possibility of which they have clearly proved; and I think these facts, combined with our knowledge of the facility with which fractured bones will unite, may induce us to declare that the process of bony union is governed by the same laws as union between other divided textures. Instances, however, so seldom occur, that our knowledge of such cases is necessarily slight and uncertain; but time may add to our stores, and furnish us with undeniable truths. It is not long since the idea of restoring the nose was laughed at and disregarded. “Eos derideo,” says Lanfranchi, “et mendacii impudentissimi arguo, qui affirmare audent, in manu incisum portasse nasum, qui postea fuerit in locum suum restitutus.”|| I will not, however, relate all that has been said on the subject; investigation and experiment having in modern times brought forward so many successful cases, that we need not care much for the opinions of those who wrote before us.

From all that we do know of this very interesting department of Surgery, I think we may deduce one grand conclusion—namely, that re-union succeeds best, not when the separated portions are immediately brought into contact, but, on the contrary, when five, ten or fifteen minutes, or even an hour, is permitted to elapse before the divided parts are re-applied.

Writers have dwelt upon this fact as somewhat extraordinary, and supposed that union must be the more

\* Wieseemann. aa. O. Job van Meeckern. Obs. Med. Chirur. edit. lat. Blasii Amstelod. 1682, p. 7.

† Animadversiones quaed. Chirur. Experiment. in Animalib. fact. illust. auctore D.C.T. Merrem, Giessæ 1810.

‡ Journ. der Chirurg. und Augenheil kunde Bd. 2 Hefl. 4 Berlin 1821.

|| See Introduction, p. 24.

difficult to be effected, the longer the portions remain separated from each other. The divided part has often fallen aside, and is perhaps not easily found; but, it is precisely to this accidental delay that we are indebted for a successful termination of the case. Immediately upon separation, the vessels of both portions pour out blood, which forming a layer on the cut surfaces, acts as a foreign body, and prevents union. The bleeding soon ceases, and Lymph begins to exude, as well from the stump as from the separated portion.\* This is known to have taken place by the peculiar moist appearance of the cut surfaces, and now is the proper moment to attempt the re-union.

Without reverting to the experiments of others, I shall now relate, as simply as possible, my own observations on the transplantation of skin in men and animals. With birds I never succeeded, the strips of skin invariably becoming dry and shrivelled and soon falling off. In one case, however, in which I had transplanted to a pigeon, a piece of skin from a young pig, although it became as before dry and shrivelled, I observed, on raising the strip, that the bristles on its inner side had again taken root. I was equally unsuccessful in my attempts to re-unite separated tails of young dogs and cats. Only in one rabbit, out of a great many, did I succeed in re-uniting the point of the nose. Here again, I thought I was about to fail, as the re-fastened point appeared quite dead, and no union at its edges had taken place; gradually, however, the outer skin and dry edge peeled off and I found the remaining portion closely united with the stump. I made at least fifty attempts at transplantation on the ears of dogs and rabbits, but succeeded only in three cases, in re-uniting the detached portion;

\* So, in the process of re-union of bones after a fracture, it has been proved by the experiments and observations of Sir Astley Cooper and others, that the blood first effused is an obstacle, which must be removed by absorption, before the callus can be deposited.

similar experiments that have yet been made, are for the most part unimportant, and have added but little to science. Baronio, von Gräfe, Richerand and Wiesemann deserve, however, great credit in reference to this subject; the first and last on account of their admirable and often successful experiments, and the others for the indefatigable and unremitting care and perseverance with which, though unsuccessful, they prosecuted their investigations.

In five cases I attempted to re-unite fingers that had been separated from the hand; but although every possible care was taken to promote adhesion, they invariably became putrid and were obliged to be removed.\* No one can doubt the truth of the similar cases, attended with success, that we find related, but it would appear that mere chance acted more powerfully in these cases than either the genius or professional abilities of the Surgeon. The same may perhaps be said of separated parts of the Nose. We know that in India, where the amputation of the Nose was a frequent punishment of crime, justice was often defeated by criminals getting the organ re-applied;† and yet how often do Surgeons fail

\* After the first Chapter of this work had passed the press, a case of this nature was communicated to me by Mr James Fraser, an intelligent Surgeon of this place, in whose practice it occurred. In August 1826, John Scott, a cooper, while working at his trade with an adze, amputated, with the exception of *a mere strip of cuticle*, the point of his middle finger, between the nail and joint. When Mr Fraser saw him, a quarter of an hour after the accident, the point hung down, cold and pale; a Physician who was present urged him to divide the bit of skin that attached it to the remaining part of the finger and to dress the stump. Contrary, however, to this advice, the cut surfaces were approximated and a strip of adhesive plaster was placed round the wound; no ligatures were used, the finger being merely fixed in a splint of pasteboard, made in the form of a large thimble. Union speedily took place and in fourteen days the patient returned to his work, and soon after recovered the power both of motion and sensation. The man is quite free from all inconvenience in the part, and merely a slight cicatrix encircles the finger.—

TRANSLATOR.

† See Introduction, p. 29.

in replacing the point of the nose that has been accidentally separated? I have never had an opportunity of witnessing a case in which the point of the Nose was *entirely* separated and then re-applied; but, I knew a young man in whom this was almost the case—the piece hung only by a strip of skin not thicker than a pack-thread. I had no occasion to divide this slight connection; and, after stopping the bleeding, which occupied about a quarter of an hour, I re-applied the point to the stump, and confined it by five sutures, and two strips of adhesive plaster. In a few days the portion had freely united. In another case, of a somewhat similar character, a long but narrow strip was removed by a sabre cut from the nasal ridge; the piece had fallen to the ground and was covered with sand; I washed it, and re-applied it, fastening it in its situation with six sutures. The next day it was much swollen, and therefore, might be regarded as still possessing the vital principle. On the third day the swelling was more considerable and the strip very red; I ordered leeches and cold applications. At this period unfortunately, my patient neglected my advice, and was induced to permit stimulating lotions to be employed. The next morning I found the strip black and dry; and in a few days it fell off.

I might here mention many cases in which I succeeded with great facility in promoting re-union, by means of fine sutures and cold applications, of points of noses nearly separated from the stump; but such instances possess no particular interest.

With the exception of a very few cases, all my attempts to re-unite portions of skin that were entirely separated from the body failed; and even where I did succeed in re-uniting some small portion of the strip, the outer skin invariably sloughed off. It was a small portion indeed that ever did re-unite. The number of my attempts was very considerable, as I availed myself of the opportunity which almost every surgical operation I performed afforded. For instance, when removing

tumours, I generally took away a portion of skin with them, which I always re-applied to the wound ; but on removing the bandages I generally found it either putrid, or of a whitish appearance, or black, or blue, or dissolved into pus with the dry epidermis sticking to the linen. These results, and that already mentioned as taking place when animals were the subjects of experiment in which the transplanted portion of skin became dry and hard, led me to conclude that when, as in the first case, the skin was found on removing the bandages, to be putrid, that its vitality must have been extinguished soon after transplantation. On the other hand I conceive, that when the portion of skin is found of a blue or blackish hue, it must previously have entered into some vascular connection with the surrounding parts, and afterwards become gangrenous ; and lastly, when as in the third case, the dry epidermis is found sticking to the bandage, I think that the transplanted part must have retained its vitality for a much longer period, and that then owing to some cause its cellular substance became converted into pus.\*

These observations—which I believe to be original—may, if correct, lead us to the great desideratum of being able to prevent the decay of transplanted parts. We must admit that transplantation has frequently succeed-

\* It is hardly necessary in the present day formally to protest against this antiquated expression. The old doctrine that it was from the melting down, as it were, of the solids that pus always resulted died with Platner, Bouharve, and Pott ; and the subsequent hypothesis of Gaber, Sir John Pringle, and Cullen, that it was nothing more than effused blood, which had become changed by stagnation, was, in its turn, superseded by the theory of Simson, supported by De Haen and Morgan, that it was a new secretion, the result of a certain character and degree of inflammation—a theory at present almost universally adopted. It is not therefore to any indefinite cause, as stated by Dieffenbach, but to inflammation, nor is it to a conversion of the cellular tissue, but to a new secretion into its substance, that the pus, in the above instance, is to be attributed.—TRANSLATOR.

ed ; why it has so often failed we know not, but still we may hope that correct and repeated observation will at length enable us to penetrate this grand Arcanum of Nature, to understand her processes, and thus to extend the boundaries of the healing art.

All writers agree that muscular and cartilaginous parts freely supplied with blood adhere, when transplanted, better than portions of a looser texture and of a paler colour ; yet still there can be no doubt that the scrotum would succeed better than any other part of the body. Its reproductive power is well known ; and I have seen several cases, in which it was destroyed by suppuration and gangrene, and the testicles were seen exposed and suspended by the cord, and nevertheless the whole piece of skin with its peculiar folds was entirely regenerated. Accident alone led me to the knowledge of the great length of time that the scrotum will retain its vitality when removed from the body. I had occasion to extirpate a diseased testis, and with it I removed a large portion of the scrotum. While the wound was being closed by the assistants, in order to see how large a portion of scrotum I had removed, I dissected the testicle from it and spread it out upon the table ; it was not thicker than card-board, and nearly as large as the palm of the hand. I left the table, and, in about a quarter of an hour returning to it, was much astonished at the alteration that had taken place in the shape of the piece of scrotum : it had shrunk together, and was rolled up as a ball, looking like the scrotum of a man who had just left the cold bath. I had some difficulty in spreading it out, as it had much contracted in its dimensions ; but, having done so, on pouring cold water upon it, a slight contraction again took place.\* May not these phenomena be ascribed to the part retaining its vitality for some time after removal from the system ?

\* The scalp possesses similar powers to the scrotum. see Petit, Desault, Wicseman, Hill of Dumfries, John Bell, &c.—TRANSLATOR.

When a portion of skin is cut round by the knife, previously to its being completely separated from its connections, and often when only a few drops of blood have been lost, it becomes of a death-like paleness; this cannot be owing to the exhaustion of the blood vessels, and must be considered as the consequence of nervous influence. I believe that Professor Wolfart alone has noticed this circumstance,\* which he ascribes to a spasmodic state of the capillary vessels propelling their contents towards the deeper seated vessels.† Soon after the piece is entirely separated, it becomes somewhat redder; a small quantity of dark-coloured blood escapes from the edges—the consequence, it would appear from a careful microscopic examination, of contraction of the vessels—this is soon followed by a lymphatic exudation, while its external edges are, as it were, drawn together, or curved inwards, and its centre becomes somewhat elevated. In about an hour from the time of removal from the body, the piece of skin becomes dry and rapidly goes through the stages of decomposition. No such changes ever take place in portions of integuments removed from dead subjects; they immediately become dry.

I now proceed to the consideration of the changes in appearance, &c. that takes place in transplanted skin, where a communicating and nourishing medium has been preserved, reminding the reader that I speak from actual observation, and describe Nature as she presented herself to my view. And I would here premise that problematical as undoubtedly is the re-union of parts that have been completely separated from the body, we may yet feel assured that in most cases, where a connecting medium has been preserved, union may be effected.

On making the first incisions, we observe, as in the former case, and dependent upon the same cause, that

\* Von Gräfe's and Walther's Journal. Vol. XV. p. 2.

† See Note, p. 123.

the portion included within them first becomes pale; but, immediately afterwards its upper part, where a connecting medium has been preserved, loses its paleness and assumes a redder hue. We frequently find also dark blue spots or streaks, similar to those upon dead bodies, and probably owing to a stagnation of venous blood, scattered throughout the flap, but I never observed at this time patches of a light red colour. The blood that is poured into the flap by arteries spouts out, until some degree of coagulation takes place, when lymph begins to exude from their cut extremities at the edges of the wounds.

The size and form of the flap are altered. It contracts considerably, and has an inclination to curl inwards; and if we unfold it, we find it elastic, the part immediately re-assuming the same rolled up appearance.

The degrees of diminution, and the accompanying thickening of the flap, depend upon the character of the skin, and the age of the patient. In soft, fair and tender skins, particularly those of old subjects, I have found little or no diminution in the size of the flap, and consequently little thickening; for, it is that which it loses in mere superficial expanse, which increases its thickness. In young, dark and healthy persons the contraction is generally considerable, and the thickening proportionate.

Except at the connecting bridge the flap loses all sensibility, which even there it is but slight.

I pass over all observations on the wounds made on the brow, scalp and face, since the subject is sufficiently well understood.

None but an inexperienced Surgeon would form his flap according to a carefully prepared model of a nose. He deceives himself and his patient in supposing that flesh is as manageable as wax. Our principal and primary object must be—taking care that it is a third, or at least a fourth larger than the nose we propose to form—to remove a piece of skin from the brow or scalp,



and to unite it to the face. The best shape is triangular—leaving a wide attachment and connecting bridge at its upper part—and the best method of obtaining it is to lay a piece of sticking plaster of the necessary size upon the part whence we mean to obtain our flap, and to cut along its base and sides.

I am of opinion that small fine needles, or pins such as are used for fixing insects in Cabinets, applied in the manner already described, are the best modes of obtaining union, and that bandages of all kinds are as unnecessary, as they are distressing to the patient.

In the after treatment of the newly formed nose, cold, in a greater or less degree, is preferable to all other applications. Observation has convinced me that the decay and death of the flap generally proceed from its being gorged with blood, which flowing in copiously, and unable to find egress, or to be returned by the veins, causes great distention and subsequent mortification. In forming the bridge care must be taken to destroy any artery that may present itself, and thus as much as possible to prevent any considerable quantity of blood being thrown into the flap. When this is done, for some time after the operation the new nose appears pale and withered; whereas when it is omitted, it almost immediately becomes highly coloured, swells violently and generally perishes from repletion. When such an accumulation of blood takes place, we must encourage a gentle flow from the lower edges of the flap. In no case should we *tie* a bleeding artery; if too much blood be lost, pressure must be employed, as then we are able to renew the bleeding as circumstances may require.

On the ninth or tenth day all inflammatory swelling has generally subsided, and the outer skin cracks and peels off. If the nose has been formed from the scalp, the hairs which have now regrown may easily be plucked out; and they either do not return, or return so sparingly, that they are easily destroyed with lime-water, or a solution of the muriate of mercury.

An important branch of our investigation is the form that transplanted parts have a tendency to assume, since a knowledge of the changes in shape that parts so situated generally undergo, must greatly assist us in our operations. Whenever a strip of skin has been removed from the body, and replaced in its former situation, we observe, that notwithstanding the greatest care has been taken, the re-united portion always rises, becomes prominent and is not uniform with the adjoining surface. The thinner the divided portion is, the more elevated it is when healed; particularly when the neighbouring parts are loose and flabby. This singular inclination of divided strips of skin to rise and become elevated when re-united, it is of the greatest assistance in Rhinoplastic operations; and, it is principally in consequence of this peculiarity that we are enabled to effect the formation of the nose. Sometimes, however, this drawing together of the sides becomes too considerable, and the nose appears unnaturally round, leaving great room for the Surgeon to exert his talents in reducing it to a proper shape. After the strip is formed and its edges united to the face, its inner surface throws out granulations so luxuriantly, that the whole arch is soon filled up and a solid mass of flesh takes the place of the thin strip that was removed from the brow or scalp. During this process the sides of the nose gradually approach each other, and at the same time, the edges of the nostrils begin to sink inwards; the consequence of which is, that, although they may have been previously large enough to admit the introduction of the point of the finger, they soon become altogether obliterated. To obviate this defect I conceived the plan, already detailed, of introducing small strips of skin obtained from the neighbouring parts within the nostrils, and retaining them in their situation until they have healed and united themselves to the sides, and thus formed a strong and unyielding border to the part.

It is quite needless to attempt to improve the form of

the nose by pressure; since as soon as it is removed the organ returns to its former shape. Nothing will avail but the knife; and the best method of using it is to dissect small portions of skin, of a myrtle leaf shape, from the ridge and from the sides above the alæ; and when the edges of such oval wounds are brought together, the nasal ridge is necessarily sharpened and the point pushed out. Wounds made in transplanted portions of skin, when their edges are brought together, heal with astonishing rapidity by the First Intention, and scarcely leave the vestige of a cicatrix. When permitted to heal by granulation, the progress is somewhat singular. At first they bleed copiously, and the blood is very bright and liquid; the wound is pale and its edges scarcely inflamed; little or no suppuration takes place; and, as in birds, the exuded blood forms a scale or scab over the wound, which, when this falls off, is found filled up and healed over.

It is singular that if it be necessary to separate an edge of the transplanted nose from the face and to reunite it, as when we remove a disfiguring cicatrix between the parts, it never heals by the First Intention, but always goes through a long and tedious process of granulation.

It is long before any sensation is developed in transplanted parts; and it is not for many months after the wounds have completely healed, that the nose is sensible to pain; nay, even then, punctures made with a needle are slightly felt only near the points of union, while on the nasal ridge no sensation whatever is experienced. Lisfranc alleges that a puncture made on a nose formed from the brow is felt on the forehead, this however, is fanciful, and without foundation. It is at least twelve months before the power of sensation is established in a transplanted nose;\* and it is not till then that it becomes

\* The tardy return of Sensation to parts which have been transplanted will be sufficiently easily understood, when we reflect that Sensation everywhere depends upon certain nervous filaments called

similar to the skin of the face in its functions and discharges. At this time it begins to perspire, and, when wounded, gives out a thick and healthy pus, to the production of which, the fact shews, that nervous influence is necessary.

With regard to other kinds of action in the part, I have found it to withstand, uninjured, great degrees of cold; and I have, on the other hand, known a large watery pustule appear on a newly formed nose, when a patient ventured too soon into the open air. The transplanted part, probably from its limited nervous communications, is very peculiar in its properties, as the following instance clearly shews. The man whose case is related at page 109 was attacked with Icterus, eighteen months after his recovery from the operation, and Dr Martini informs me that his whole body, with the exception of his recently acquired nose, was of a deep yellow colour; whereas when the patient was warm, the nose was of a clear white, and when cold, of a dark blueish hue. The nose was void of sensibility, and I ascribe the peculiarity to the want of nervous communication. \*

Sensific, extended between the part in question and the Sensorium, and that these filaments are necessarily cut through by the operation; nor is it till they have become connected again, with other nervous trunks proceeding to the Sensorium, that sensation is re-established. In the mean time the organic Life of the part, depending, as it does, upon a system of nerves, each filament of which is a centre of nervous energy to itself, and does not depend, like those which minister to Animal Life, upon any common centre for the enjoyment of its function, continues unimpaired. A new graft is thus, for some time, in the condition of the greater number of the internal organs of the body, living by virtue of its Ganglionic Nerves alone, while few or no Sensific Nerves extend from it to the Sensorium.—TRANSLATOR.

\* This remarkable fact seems to be explicable only upon the same principle as the temporary defect in the natural secretions of the new nose above alluded to—namely, the want of the stimulus naturally extended from the Brain to the secreting organs—so that the deposited sebaceous matter is not in sufficient quantity to betray, by its colour, its impregnation with Bile. It appears at first sight opposed to this conclusion that, in some cases of Jaundice, occurring in per-

I have now brought this work to a close, and leave my opinions—the results solely of experience and observation—to the indulgence and patient consideration of the Profession. I can, at least, claim the merit of having faithfully detailed my operations; and should any one be inclined to doubt the accuracy of my statements, I would only request him to delay offering an opinion upon them, until by repeating my experiments he has acquired the power—which personal observation can alone impart—of forming an accurate and unbiassed judgment.

sons effected with Hemiplegia, Morgagni and others have remarked that it is only, or chiefly, on the effected side that the yellow colour is apparent: but this is no more remarkable than the well known fact that a palsied limb is sometimes habitually more cold and dry, at others more hot and moist, than the rest of the body. The influence of the Brain on the Capillary or secreting vessels is such as, under some circumstances, to constrict, under others, to dilate them—as in the familiar examples of paleness and blushing—at one time to diminish, at another to increase the natural secretions,—as in the equally familiar instances of either a suppression or an increased deposition of Tears, Saliva, Milk and other fluids, from various emotions of the Mind. Now the very different effects which under different circumstances, are so well known to result from the influence of the Brain under extraordinary excitement, may be easily supposed likely to be produced in different cases—although in a minor and more permanent degree—by the ordinary influence of this organ. But from all these effects parts which have been wholly or partially removed from out of the sphere of Animal Life are more or less exempt; so that it appears not difficult to understand why in them the Secretions should be at one time more copious, and at another less so, than those of parts which are still under its natural influence, and therefore liable to have their secreting vessels either constricted or dilated, and their secretions, necessarily therefore, either diminished or increased, according to circumstances.—TRANSLATOR.



## APPENDIX.

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### CASE I.

THE following is an account of the best Rhinoplastic operation as yet, I believe, performed in Britain. It is alluded to in a Note at page 53, and was shortly communicated to me in the following Letter from my friend Professor Lizars. It not only forms a valuable addition to this work, but will, I doubt not, excite others in their endeavours to produce an example as perfect.

“ 38, York Place, Edinburgh, 20th August, 1833.

“ My dear Sir,—Mrs B., aged twenty-nine, was attacked with ulcerated throat about eleven years ago, which ultimately involved the Nares, and produced the disfiguration depicted in Plate XXV. Figure 1. She consulted me in 1830, with the countenance as there represented; there being still slight ulceration in the floor of the Nares, this was treated with the application of the nitrate of silver once a week, until it was healed. She took the compound decoction of sarsaparilla for six months. In July, 1831, the operation was performed in the usual manner, and the drawing, Plate XXV. Figure 2, was taken eight weeks afterwards. She now occasionally calls on me in the morning at my Surgery, and neither my pupils nor patients who may be present, can discover without minute examination, that she has undergone such an operation.

“ Believe me, my dear Sir, very sincerely yours,

“ JOHN LIZARS.”

“ To J. S. Bushnan, Esq. Dumfries.”

## CASE II.

IN contrast with the foregoing case, I add an unsuccessful one of my own, and I do so because it illustrates some practical points in the conduct of these operations, that are necessary to be attended to.

Nancy Charlton, aged forty, was admitted ten years since a patient in the Dumfries and Galloway Royal Infirmary. She then laboured under syphilitic ulcerations of the throat; fourteen months after her admission into that institution she was discharged free from disease, but without the slightest trace of a nose. She consulted me in 1831, and then, in the place of a nose, exhibited a large triangular hole; nasal and turbinated bones, septum, columna and all the soft parts were wanting. The sides of the cheeks, bounding the hole in the face, were covered with thick, red, callous and indurated cicatrices; indeed the superior maxillary bones were so slightly covered with integument that I almost despaired of bringing about adhesion; at the earnest solicitations, however, of the woman, I performed the operation, at which several of my professional brethren were present. The flap was brought down in the usual manner from the forehead, and in a few minutes attached by six sutures to the cheeks, in which, grooves for its reception had previously been made. I was induced to place a large tent of lint dipped in oil under the flap in order to support it. This was a very great error, and should always be avoided. The tent caused pressure upon the flap, the consequence of which was that gangrene ensued, and in a few days the whole point sloughed off. On the right side the flap united to the face only in its lower half; my utmost endeavours to effect union of the upper half of the right side and the whole of the left—in consequence of the old cicatrices—completely failed. The scalpel, caustic, blisters, the actual cautery and every other means that could be devised were tried, but the raw surfaces invariably healed—although accurately kept in contact—without the slightest adhesion taking place.

The flap soon thickened, and ten months after the operation the accompanying drawing, Plate XXVI. was taken.

From this case I think several practical and useful observations are to be drawn: it shews the error of introducing a tent beneath the flap, under the false idea of supporting the new nose; it points out the difficulty, if not the impossibility of obtaining union where



the face is so greatly cicatrized, as was the case in my patient; and moreover, it beautifully demonstrates how slight need be the communication between transplanted parts and the general system, in order that the circulation and sensation may be preserved. Imperfect as is even now the connection between the parts, slight sensation is enjoyed and the nose is of the same temperature with the rest of the body.

























*Pl. III*



















*P. V*









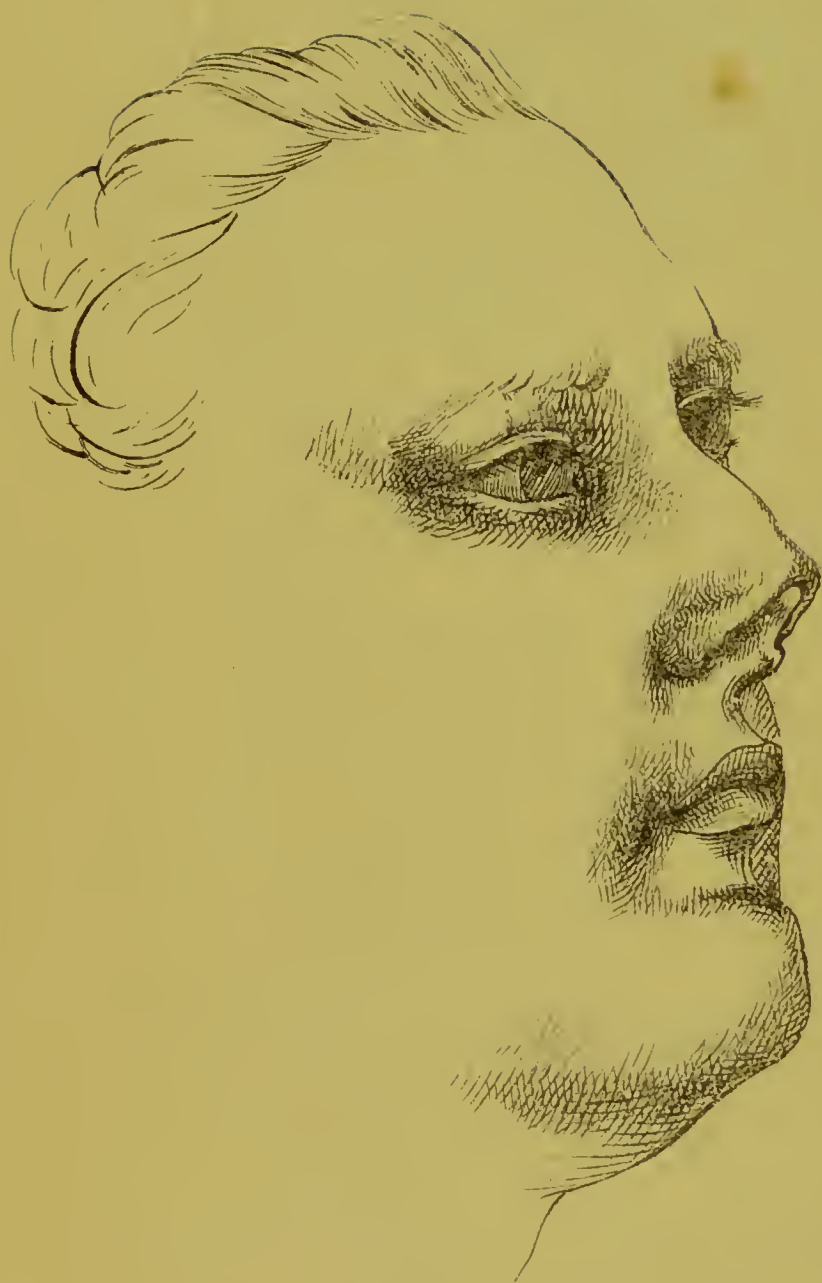




















*Pl. VIII*

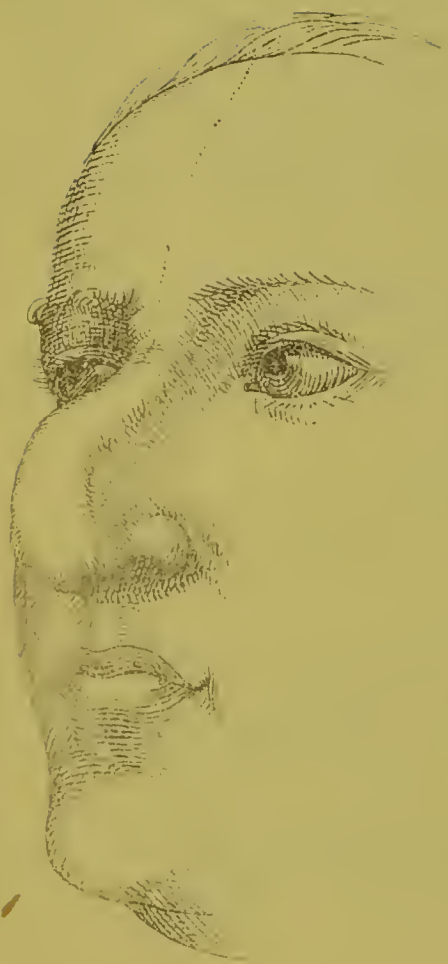










Fig. 2

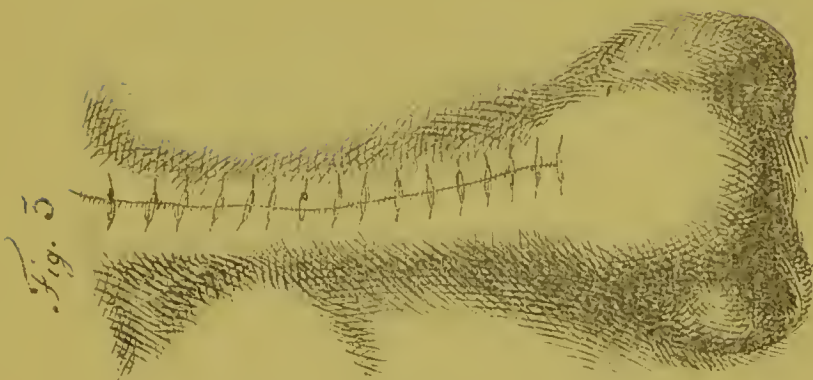


Fig. 3



Fig. 1









*Pl. X*









Fig. 2



Fig. 1

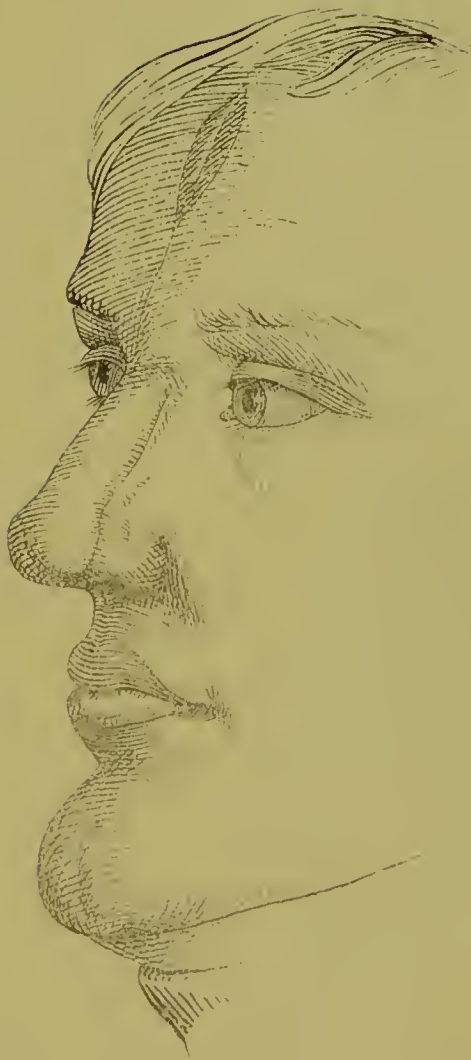








*P. XIII*



















Pl. XII









Pl. XV

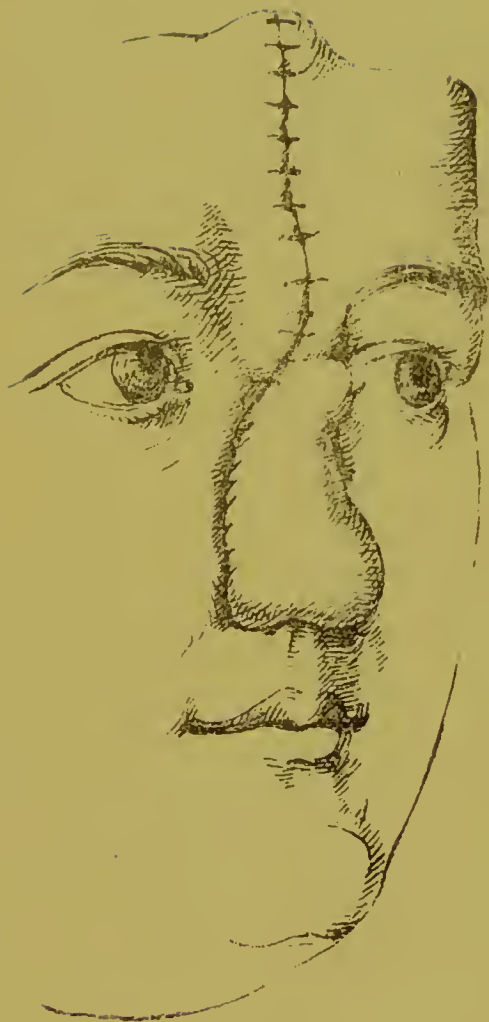


























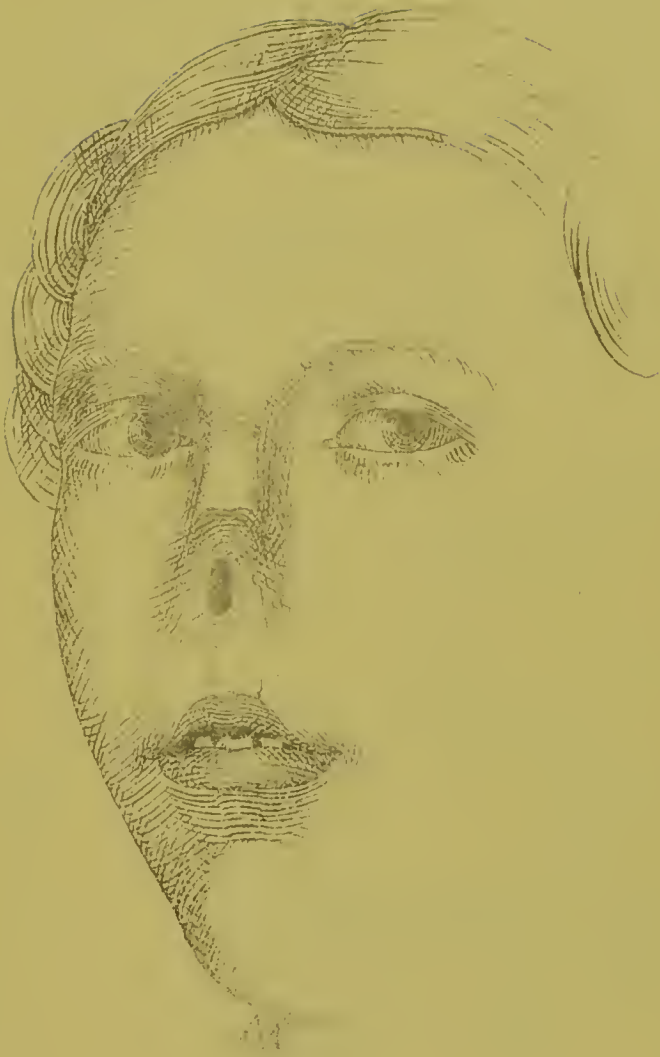












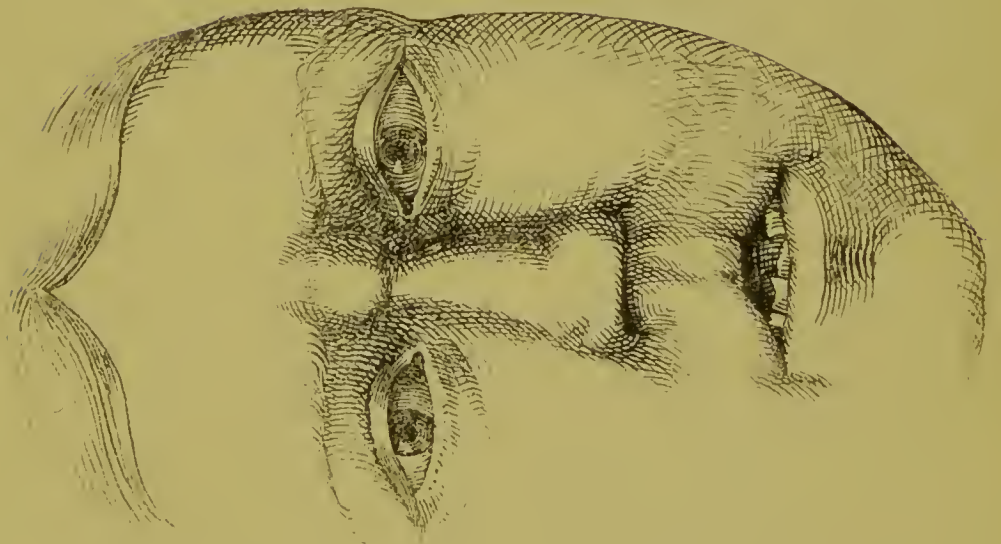








*Pl. XX*









PLATE











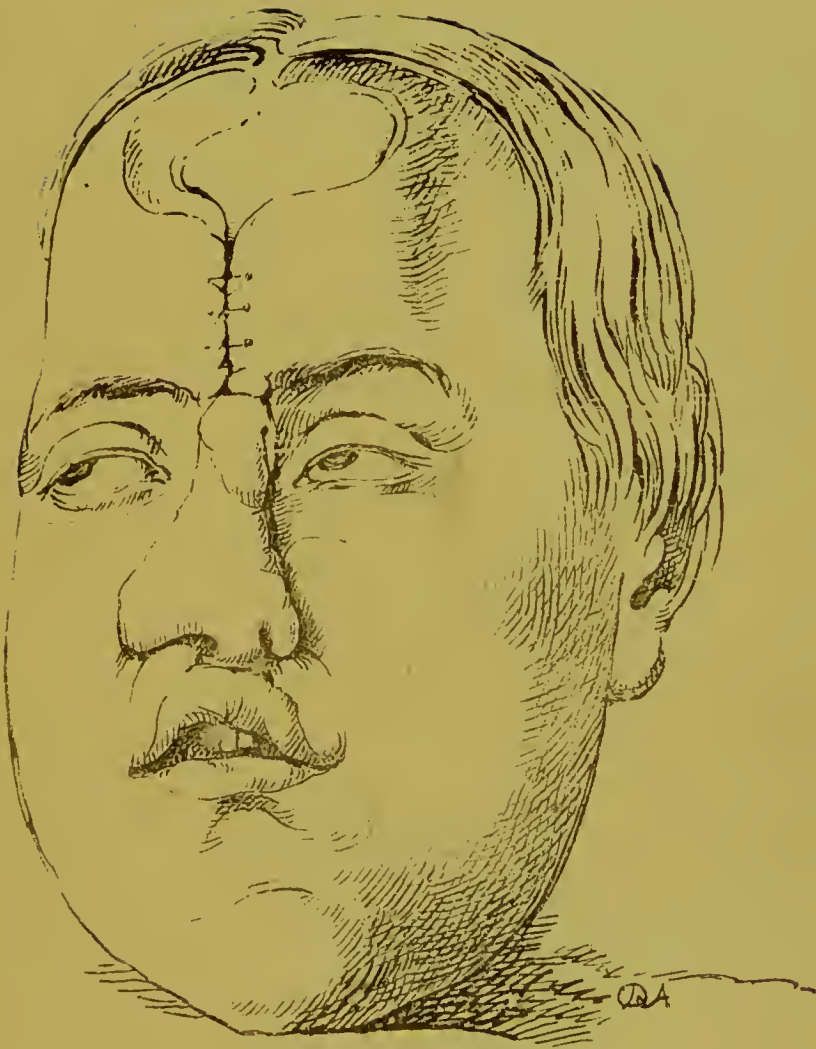


























Fig. 2



Fig. 1















*In the Press,*  
WITH A PLATE,  
THE HISTORY OF A CASE  
IN WHICH  
ANIMALS WERE FOUND IN BLOOD  
DRAWN FROM THE VEINS OF A BOY,  
WITH REMARKS.

By J. STEVENSON BUSHNAN, Esq., F. L. S.  
SURGEON TO THE DUMFRIES DISPENSARY,  
ETC. ETC. ETC.





